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BY JOHN D. LEGARE, EDITOR.

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THE
SOUTHERN AGRICULTURIST.
JANUARY, 1833.

PART I.

ORIGINAL CORRESPONDENCE.

ART. I.—Report of a Committee, on Marsh-Mud as a Manure for Cotton.

Read before the St. Andrew's Agricultural Society, of James'-Island, July 3d, 1832.

IT is but of late, that the practice of manuring with this substance has been introduced; your Committee are not, therefore, prepared to say much on this subject from their own personal experience: they must resort to the result of the investigation of others. Several reports, from men of *high* attainments in agricultural knowledge, leave it beyond dispute, that salt-mud possesses valuable properties as a manure for the cotton plant. If our opinions were to be guided by all that has been said in favour of its use, we should be nearly forced to acknowledge, that a manure has at last been discovered, adapted to all descriptions of soil, and all differences of season: but reason, as well as experience, teaches us this cannot be.

Seeing then, that the introduction of mud as a manure, is of so *recent* a date, that the encomiums passed upon it are so extravagant; it becomes the duty of the planter, to proceed cautiously in its use, and not too hastily and implicitly confide, in all the virtues ascribed to it; for no

doubt, the same rule holds good in agriculture, which is but too truly applicable to every other sphere of life, that novelties are apt to gain unlimited respect; each *new* invention, and each *new* theory, immediately obtains disciples, who having no eyes, but for one side of the subject, truth cannot be attained, until time, the friend of truth, lifts the veil of prejudices and discloses the fact.

We have been led to these remarks, because we have reason to believe, that many planters have already been induced to enter too largely into this system of mud-manuring, and perhaps not paid sufficient attention to the nature of the soil requiring its use.

We propose entering into a full consideration of this subject, under the following heads:

- 1st. The nature of salt-mud, and its properties.
- 2d. The description of soil requiring its use.
- 3d. The best mode of applying it.
- 4th. Some objections to its use.

In the Southern Agriculturist, August, 1829, are contained some valuable remarks on this subject by the Hon. W. B. Seabrook, who seems to have laboured more, to acquire knowledge concerning it, than any other writer.

Mr. Seabrook sent two descriptions of mud to be analyzed by Dr. Joseph Johnson: the one, turf-mud, the other, taken from below the surface: the following was the result—

Analysis of Turf,	480 grains.	Analysis of Mud,	480 grains.
Impure sea salt,	197 grains.	Impure sea salt,	120 grains.
Sand,	129 grains.	Sand,	171 grains.
Clay,	105 grains.	Clay,	144 grains.
Vegetable matter,	49 grains.	Vegetable matter,	45 grains.

480

480

These were specimens of the *best* mud, and that which was most free from sand; yet it seems that the salt and sand were the *chief* components, the sand existing in *almost an equal quantity* with the salt: the vegetable matter, did not comprise *one ninth* part of the *whole*, and clay, between one-third and one-fourth. Mr. Seabrook, upon the result of this analysis, remarks—"This analytical view, goes far to confirm my opinion, that the most valuable benefits of marsh-mud, are derivable from its *salinous property*." We agree with this observation, though we likewise believe, the clay, the vegetable matter, and the

sand, all may contribute to benefit the plant: the clay, by stiffening a loose soil; the vegetable matter, by enriching, and the sand, by separating and diffusing the salt through the mud, may thus act mechanically, and prevent the application of the salt, in *too concentrated* a state, which would thus prove too stimulating for the powers of the plant.

We come now to that part of our subject, which refers to the description of soil to which salt-mud is best adapted. We have already shown, that its acts, by its clay stiffening, by its vegetable matter enriching, and the salt, exciting: hence light sandy land, are those which would seem to require its use, and the weight of authority is in favour of such soils. We beg leave again to quote from Mr. Seabrook's valuable remarks. In the *Southern Agriculturist*, September, 1829, he observes, "Mud may be denominated a *cold manure*, and better fitted for *high* than low lands." The circumstance which induces him to style mud a "cold manure," is the attraction for moisture, displayed by the salt which it contains, and this is another property, which renders it applicable to high, loose, and dry soils. From this attraction, peculiar benefit is derived in droughts:—but as it is not given to *us*, to anticipate the future, this circumstance is liable to cause as much evil as benefit; for if a muddled crop thrive in a dry season, excessive rains will most probably blight the hopes of the planter, if the soil in both instances is the same, and similarly treated. Our seasons are becoming every year, more variable and less to be depended on; we would respectfully offer this as another reason for proceeding cautiously in the use of mud.

We have given an analysis, and described the soil for which salt mud is best suited. It has been shown, that the proportion of vegetable matter is very minute. We believe this to be the only ingredient which is taken up into the system of the plant, and so, contributes to its support: in other words, we would distinguish this by the term, manure or aliment; the salt, it seems, acts differently, it stimulates the vessels of the plant to a brisker circulation, but does not supply them with more fluids.

The inference we would draw is—that salt-mud is not sufficient, applied *alone*, to ensure a crop from a poor soil. The salt may stimulate the organs of the plant, and by its

attraction for moisture, supply it with water from the surrounding atmosphere, and thus it may even flourish for a time: but are you not straining the organs of the plant, to an unusual or forced exercise of its functions? Nay, worse; giving these organs a greater capacity for nourishment, and yet, withholding it? As well may you endeavour to acquire health and vigour, by correcting a meagre diet with intoxicating liquors—you had far better leave the soil to its own resources; the body to its scanty fare.

We would advise in this case, the application of *well rotted* vegetable matter, cowpen, or any other rich manure, in addition to the mud, and say, without hesitation, that labour, so well bestowed, will not be in vain. It appears from others, who have had experience on this subject, that in order to derive the full benefit of mud, it should be properly pulverized, before its incorporation with the earth: care should be taken not to cover it in large lumps, as it has been known to continue in that state unaltered for years. Judge Johnson advises that it be dug early, that the heaps be not more than a hand-barrow contains, and placed between the old beds in August or September. He lays some stress upon the quantity: we will use his own words:—
“It must be distributed in bodies not exceeding the contents of a hand-barrow. On the other hand, if scattered about in small bodies, it bakes in the sun, and becomes too hard and dry for the wind, sun, rain or frost, to act upon. When dropped from a hand-barrow between the rows of an old corn or cotton field, in August or September, the operation is a very neat one. The grass keeps it open, so that the sun and rain decompose it rapidly, and when a heavy rain falls, it washes off a portion of the surface, and the water being checked by this succession of obstructions, a black deposit is perceived all along between the beds.”..... And if the mud be distributed in the same manner in a planted field, a portion of the fertilizing matter is carried to the roots of the plant in the water, and produces an obvious effect on its growth and colour.”

It has been questioned, whether mud is not equally applicable to stiff lands, and instances are cited both for and against. It seems that the only conclusion to be drawn, where facts are stated of so opposite a character is, the mud used, must have been of a different descrip-

tion, or differently applied. Mr. Seabrook condemns the practice from his own experience, while several other very respectable and highly intelligent planters are its advocates, and likewise ground their opinions on *fact*. We can readily imagine *both* right, and believe, soft mud, free from clay, charged with vegetable matter and sand, with as little salt as possible, most applicable to stiff lands. The best situations for procuring this kind of mud are, those portions of the plantations most remote from the sea, as near the shore as practicable, and if possible, where the soil is richest, and immediately after a rain. If these precautions are observed, the mud will be obtained supplied with the vegetable matter washed down by the rain, and with sand from the same source, while it will in some measure, be freed from salt. We apprehend, that more than a very small proportion of salt, in stiff lands, will injure them; not from the mere nature of salt itself, but from its affinity for water. In ordinary seasons, these lands are sufficiently retentive of moisture for the healthy condition of the plant. In uncommonly dry seasons mud applied without discrimination, to every variety of soil, may promote abundant crops, and we imagine this may be another mode of accounting for the different and conflicting opinions of planters, with regard to its utility on stiff lands: some, having been favoured with uncommonly dry: others, having had to contend with remarkable wet seasons. There are certain conditions of soil, not yet fully understood, which tend to create disease in this valuable plant; they are not discoverable by any outward signs. The diseases are, rust, and blue cotton. For the former, the use of mud has been highly recommended. With regard to the "blue cotton," Mr. Seabrook has given three such remarkable instances of its decided efficacy, that we cannot forbear again quoting from him. He says, "Mud is an effectual safeguard, against what is technically called, 'blue cotton.' The peculiar property of the 'soil, which generates this disease, I am ignorant of: but 'so destructive are its effects, that several plantations on 'this Island, that were, at one time, but of little value, in relation to the production of cotton, are now among the most 'profitable, from the steady application of marsh-earth. 'The lands of Daniel Townsend, Ephraim M. Seabrook, 'jun. and William M. Murray, were notoriously distin-

guished for raising blue, or fruitless cotton-plants. From Mr. Townsend, whose information on the subject of this communication, is very extensive, I learn that he has used marsh-mud loam, almost exclusively for fifteen years, with the most decided advantages, and that a stalk of cotton of the character alluded to, is seldom to be seen in his fields, except, where some other manure has been applied. The plantations of Mr. Seabrook, and Capt. Murray, afford signal evidences of the power of salt-mud to neutralize those properties of the soil, which are hostile to the bearing of the cotton-plant. On a section of his field, from which the sad experience of its former proprietor, had induced him to believe, he would be presented in the fall, with naught but an assemblage of luxuriant, but podless stalks, Mr. Seabrook, the last year, strewed one hundred and twenty cart-loads of mud to the acre. The result was, the unexpected harvest of three hundred and twenty pounds to the acre. Captain Murray, the past season, tried the following experiment, with a view to ascertain whether the soil of the place he had recently purchased was adapted solely to the culture of provision crops. He selected twelve contiguous acres, three of which he assisted with mud; the others were unmanured. The muddled portion of the field realized the average product of two hundred and twenty pounds to the acre, the residue, about twenty-five pounds. Many other instances, equally strong, of the extraordinary efficacy of this manure in remedying the disease to which I have invited your notice, could be adduced." Mr. Seabrook remarks, that salt-mud adds to the strength and fineness of the cotton.

Permit us to conclude with one or two observations. No one who will take the trouble, of an impartial inquiry, on this subject, can arrive at any other conclusion, than, that great benefit is to be derived from a judicious use of this substance: but there would seem to be an invariable rule of Providence, which has seldom, if ever, been deviated from of blending good with evil. Nothing is capable of conferring benefit or pleasure, but we may likewise extract from it, evil or pain: that which cannot harm, cannot benefit, but is altogether useless and inert. We should not, when desirous of arriving at certainty, in any matter, rely wholly on one side, but pay strict attention to both

parties, and without partiality, judge for ourselves; thus shall we be possessed of undisguised truth.

In accordance with these sentiments, by which we have endeavoured to be guided, we deem it our duty in laying before you the result of our labour, to advise you, not to proceed incautiously in the use of this substance, and throw it profusely over your fields. It is active, and in proper quantities, capable of doing much good, but improperly applied it will assuredly create much harm. As the chief virtue of salt-mud seems to reside in the salt, all the injuries incidental to an excessive use of the *one*, ought reasonably to be expected from a similar use of the other. Many instances may be brought forward, to show that salt in excess, will not only destroy all vegetation, but render the soil barren for years.

In conclusion, the application of salt-mud may render the chance of a *crop* more uncertain; if it meets with a dry season, the *crop* will be large, but should excessive rains prevail, a *short crop* may contribute to shake the faith of the mud-manurers.

All of which your Committee respectfully submits.

ART. II.—*On the Culture of Corn; by A. B. MEGGINSON.*

Dear Sir,—When I saw the annexed paragraph in a newspaper, I was induced to write to Mr. Megginson, and inquire his mode of cultivating a corn crop. I received, in answer, the subjoined letter, which I place at your disposal; with my best wishes for the success of your very useful journal.

Respectfully, your obedient servant,

J. CLARKE.

“Mr. A. B. Megginson, manager upon a plantation in the county of Armherst, (Va.) raised the present season, on one acre of land, one hundred and eight and an half bushels of sound corn, and two of inferior quality. This acre received no other

cultivation than the rest of the field. The same manager had frequently made one hundred bushels of sound corn, and some of inferior, upon an acre of land on Pleasant's Island, in the county of Goochland."

—
"Buckingham, (Va.) March 24, 1832.

MR. J. CLARKE,

Sir,— Your favour of the 24th of January, I have just received, and am sorry it was so long reaching me, I, however, lose no time now, in giving you the information asked for, which I do with pleasure in my lame manner.

I prepare my land for corn in the fall, if I can, with a two horse plough, by throwing it up into beds of five feet, (which is the distance I cultivate my corn rows apart, either upon high or flat land;) but, if out of my power to do it then, at any time before I commence planting. I drill altogether, with a machine, or what we call a "corn planter," made for that purpose, and leave the corn thin or thick, according to the strength and moisture of the land. If remarkably rich, and sufficiently moist, I leave a stalk every six or eight inches apart, if less rich, but still of good quality, about twelve, and I think, two feet to one stalk, far enough apart for any land that will produce at all. In moist land I plant on the bed, and in dry thirsty land, in the sink or finishing furrow, by throwing down a little of each bed into the sink with a small plough, for the purpose of getting a bed to plant in. I plough our broken land horizontally, in order to hold as much moisture as possible for the crop, and also, to preserve it from washing rains. If I break it up in the fall, I plough it again just before I plant it, by reversing the beds, as I think it very important to prepare the land well before we plant it. After planting, I keep it well stirred with a coulter-plough; (three fixed in a frame, for one horse to pull,) that will always finish a row at the third, and very generally the second furrow, until it gets large enough to bear the dirt from the mould-board, I then commence giving it my last ploughing with a small turning-plough, by running two furrows on each side of the corn, first, and then commencing again, and finishing out the middle of the row. As soon as it will do to thin, hoe it, and then thin it, and if it should require it, hoe it again. I think we should stop

working corn, as soon as it will shade the earth enough to keep other growth down, as I think it injurious to break the roots after the stalk is generally jointing.

I commence planting about the 10th of April, or as soon as I think the earth is sufficiently warm to bring the seed up regularly, that it may all grow up together, as re-planted corn is so much shaded by the first (upon my thick plan) that it seldom produces any thing.

For corn, we generally manure in the drill, owing to the scarcity of the article, or I should prefer its being spread over the land regularly; stable manure, or litter from a farm yard, well rotted, is very strong, and should not be put in the drill too plentifully, as it has a tendency to fire the crop. I put a great or small quantity, according to the strength of the manure. I am very little acquainted with lime or plaster, as a manure.

I conclude my remarks, by wishing you success, upon the mode of cultivation.

Very respectfully, your obedient servant,

A. B. MEGGINSON.

N. B. I use the Farmer Plough altogether, No. 3½, for two horses, No. 1, for one horse.

ANT. III.—*On Rotation in Rice Lands; by PRAIRIE.*

There is no drawback, Mr. Editor, to which the rice planter is exposed; which surpasses in magnitude that resulting from volunteer rice. It germinates with the planted seed, submits kindly to the laboured tillage bestowed upon the latter, participates without scruple in the attentions designed for its legitimate compeer, keeps up delusive show of waving fields and joyful harvests, and it is not until the rice has shot forth its ear, that the dismayed cultivator looks out upon the fields whitening beneath his

eye, and is left to reap a full crop of disappointed expectation.

Almost every other difficulty of the rice culture may be obviated by good trunks, good banks, good drains, and good tillage, but against volunteer rice, these preparations constitute no effectual measure of prevention. The processes of turning, ploughing, and possibly of draining, all so essential to the successful culture of the grain, contribute to aggravate the evil. If the land be infested, the finer the tilth, the more abundant the volunteer.

Various are the remedies which have been suggested for the abatement of this nuisance, and though I acknowledge, that if they be rigidly pursued, it may be commonly kept within bearable limits, still they do not effect radical cures. Flowing after harvest, the exclusion of cattle from the fields, burning the stubble, and exposing the waste rice to the birds; hand-picking the seed, turning and ploughing as rarely as possible, planting in a deep trench, covering lightly, and hoeing carefully, are a part of the means usually employed to mitigate the evil. It is notorious, however, that notwithstanding the diligent employment of all these measures, volunteer rice will not only maintain its position, but will go on increasing from year to year.

It is admitted by planters, that a change from rice to some dry culture crop will effect a radical cure. But to this the objections are, that the production of the field in rice for one entire season must be lost; that the high ground crops rarely succeed in the swamp, and thirdly, that there will be the labour of cultivating the land without any immediate remuneration. Being firmly persuaded, Mr. Editor, that with proper precaution, such need not be the issue, and thinking that a detail of my experience on this subject, may possibly be beneficial to some one whose lands are infested with volunteer rice, I have been tempted to send you the following history of a small swamp field, which for the last four years has been in dry culture.

Square, No. 3, was planted in rice in 1828. During the winter, the stubble was burnt off; in February, 1829, the field, without any farther preparation, was trenched and planted in oats, they were hoed in April, and harvested in June; early in July, the field was planted in slips, which were dug at the usual time. The product in neither case was measured, but in both instances it was small.

Not being discouraged by this failure, and believing that it arose not from any incapacity of soil, but altogether from defective tilth and defective drainage, I proceeded, early in the winter of 1829, to place a new trunk in the square to open some additional section drains, and to deepen its marginal ditches. On the 24th of December, 1829, No. 3 was again sowed in oats, they were hoed only once, and though attacked and injured by the May tides, the product was forty-seven bushels per acre. At the spring tides on the 25th of June, the land being thrown into good beds was again planted in slips, these were gathered in November, and the product ascertained to be one hundred and forty-five bushels of large potatoes to the acre. I ought not to omit mentioning that the oats grew about five feet high, that they were thrown by a squall of wind in May, and became much entangled, that the losses in harvesting them were very heavy, and that there is no doubt the actual production was over fifty bushels per acre. The quantity wasted was so large that the surface of the beds after the land was planted in slips, became perfectly green from the sprouted oats.

On the 15th of February, 1831, No. 3 was again planted in oats, they were hoed once in April, attacked fiercely by the rice-bird in May, harvested in June, and the product was forty-five bushels per acre. It is notorious, Mr. Editor, that the spring and early summer of 1831, were extremely unfavourable to the oat crop, for after the heavy rain of the 15th of April, there was no rain of any importance until the middle of June, and this long period of heat and drought was exceedingly injurious to that crop every where on the high lands. During this season of suffering, my oats were kept in a state of the most vigorous growth, by occasional flowings. It was my practice about once a fortnight to admit the night tide to flow on and then to run off immediately, and during the severity of the drought this was done for several successive nights. That there might be no risk of scalding, the day tides were carefully excluded.

In July, 1831, No. 3 was planted in slips, owing to the difficulty of procuring vines, a portion of the field was not planted until the very last of that month, upon gathering them in November, the product was a hundred bushels of large potatoes per acre, exclusive of seed. This was

much less than I had anticipated. Had the square been planted as I wished at the last spring tides in June, I have no doubt the product woud have equalled that of the preceding year—say one hundred and forty-five bushels to the acre.

And here, Mr. Editor, I would state, that the mode of planting slips in the swamps, differs from that pursued on the high ground. In the swamp, we plant by tides, and not by showers. Just before the spring tides the field is well listed, and as this cannot be neatly done, if there be much stubble, it is our rule to cut the oats as long as possible. As soon as the tides come, they are admitted for three or four nights in succession, and in the day we plant our slips. I would remark further, that to promote the setting of the slips, it is our practice to haul them up as soon as they are planted, and this operation is so important, that it should on no account be postponed. Our rice lands consist of a heavy loam, and even under the best drainage, when thrown into potato beds, the tops of the ridges will contain a large admixture of clods and lumps. It is in this rough mass which cannot lie compactly, that the slips are planted, and should we neglect to fill up the interstices of the clods, by a speedy hauling up, the atmosphere will penetrate the bed, gain access to the vines, and exceedingly endanger the setting of the crop. By postponing or omitting this operation, we shall, to say the very least prevent the slips from starting vigorously, and when this occurs, the crop will inevitably be curtailed.

In the preceding part of this article, I expressed my firm persuasion, that high ground crops could be successfully grown in our tide swamps, and I think have advanced facts which fully warrant that opinion. An objector may, indeed, say that I did not succeed the first year. To this, my reply is, that the failure evidently arose from want of tilth and want of proper drainage. My subsequent success fully demonstrated, that these were the sole impediments to the successful cultivation of the upland crops in our rice swamps.

I am aware the opinion prevails, that these dry culture crops do not succeed well in our tide lands, and I can only account for this impression by supposing that the experiments have been made in fields not in proper condition. It is the practice with many rice planters to throw out for

a year or two, squares much infested with volunteer or water grasses, and in these, without any proper preparation, some of the upland crops are occasionally attempted. Failure in such a case is inevitable, and it is possible that the general prejudice existing on this subject, has arisen from experiments made under circumstances thus unfavourable to success.

It may be asked what mode of preparation is deemed the best for lands which have been in rice, and which it is proposed to try in dry culture. At the risk of being tedious, I will answer these inquiries by stating the treatment designed for square No. 1, now in rice, but which I propose, on account of volunteer, to plant this coming year in oats and potatoes. Being admonished by my former failure, that without deep tilth and good draining, there will be no chance of success, I propose as soon as my fields are gleaned, to have the square deeply broken up, my next step will be to deepen all the drains, both large and small, to cut new ones if found necessary, and to place, if need be, the trunk down to low water mark. These matters I shall execute as early as possible in the fall, and I confidently anticipate, that the pulverizing influences of the frost and deep draining, will give me the requisite degree of tilth. Should the winter be dry, I shall occasionally throw a tide over the field, so that when the frosts do come, they may not find the surface entirely destitute of moisture. In February, I propose harrowing, and on the 15th of that month sowing in oats. The after treatment will consist of two hoeings instead of one as heretofore, and a liberal application of night tides. As it is my sincere wish to give useful information and not to excite delusive hopes, I will add, that as no winter preparation can be equal to one year of dry culture, I do not expect that the production of the first year will exceed thirty-five bushels of oats, or one hundred bushels of potatoes per acre.

The foregoing details, Mr. Editor, may possibly be valuable to some of your readers, whose lands are infested with volunteer rice. I would say to any one disposed to make the experiment, that if circumstances will not permit the land to be placed in the finest condition, I would certainly dissuade from the attempt. Where the lands is in fine order, the benefits resulting from the rotation, will

be numerous as well as enduring. Two valuable crops may be taken from the land, in one year, all sourness arising from the long culture of rice will be totally removed, the texture of the soil for years to come will be bettered by being made more porous and less adhesive, and what is of the greatest importance volunteer rice, water-grasses, and noxious weeds, will all be effectually exterminated. The ensuing year, the field, having been thoroughly *cleansed* by these fallow crops, will be in the finest possible condition for the rice culture, and if planted with pure seed, will give the planter not only an abundance of seed for himself, but possibly a surplus for which there is always a fair price, and a steady demand.

PRAIRIE.

ART. IV.—*Observations on the Culture of Rhubarb; by the EDITOR.*

Read before the Horticultural Society, October 16th, 1832.

Of the various vegetables which it appears desirable at present to introduce into this State, we know of none more deserving the attention of the horticulturist, and of all the encouragement this Society can offer than the Rhubarb, whether we consider it as adding to the luxury of our table, or the collection of our *Materia Medica*.

It is not our intention in the few remarks we shall offer to enter into the history of this valuable plant, but merely to draw the attention of this Society more to it.

The three species most cultivated for tarts and conserves, are the *Rheum Rhaponticum*, a native of Asia, the *R. Hybridum*, a native also of Asia, and the *R. Palmarum*, a native of Tartary. These are all perennials, and cultivated solely for the petioles of the root leaves, which made into tarts or conserves are scarcely surpassed by any of our fruits. Besides these, there are the *R. Undulatum*, and the *R. Australe*, together with numerous varieties originating from some one or other of the above

enumerated species. The *R. Palmatum*, was for a long time considered as the species which produced the true Turkey Rhubarb, and the difference discovered between the roots grown in England and that imported, was ascribed to climate. More recent investigation has resulted in determining, that it is not the *R. Palmatum*, which produces the Rhabarb of commerce, but the *R. Australe*, which has been more recently introduced, and is now under culture in Europe.* It is said to be as hardy, and to grow as well as the other species, but we are without

* The following information relative to this species, is derived from the British Flower Garden, by Robert Sweet. "The leaves are heart-shaped, large, their margin set with little red glands; the flowers are of a blood-red, as are the seed vessels; and, from these circumstances, it is easily distinguished from every other species of the genus yet known. Dr. Willich, of Calcutta, first transmitted seeds of this species to England; from which plants were raised by A. B. Lambert, Esq. of Boyton House, and flowered in June, 1828. Mr. Don and Mr. Sweet consider it 'undoubtedly the handsomest species of the genus,' independently of 'the interest attached to it as a medicinal plant.' The following description is by Mr. David Don:

"The stem in the cultivated plant is from 7 to 10 feet high; the leaves are numerous, ample, and of a grassy green; the flowers are smaller than in any other species of the genus, of a dark or blood-red colour, and disposed in many branched clusters; the seeds that afterwards appear are dark red, with a highly polished surface, resembling, at a distance, clusters of glittering beads. When bruised, they emit a powerful odour of rhubarb, are highly astringent, and dye the fingers red, from the quantity of colouring matter contained in the testa. It is perfectly hardy, and appears to ripen its seeds even more copiously than the other species; and, from some trials that have been made with the footstalks of the leaves, it seems disposed to vindicate its medicinal claims even in our own climate. The colour of the flowers would alone be sufficient to distinguish it among its congeners. The late period of flowering deserves also to be remarked. As all the species are endowed, in a greater or less degree, with similar properties, much difference of opinion has arisen, both among botanists and pharmacologists, respecting the one that yields the rhubarb of commerce. Linnaeus considered it at first as the produce of his *R. Rhabarbarum* or *undulatum*, but he afterwards appears to have altered his opinion in favour of *R. palmatum*; which opinion has been almost universally adopted by pharmacological writers, although it is admitted that the qualities of the root of *R. palmatum* differ materially from the Turkey rhubarb of the shops: but this deterioration has been attributed to the difference of soil and climate. The *R. australe* appears to be peculiar to the great table lands of central Asia, between the latitudes of 31° and 40°, where it is found to flourish at an elevation of 11,000 feet above the level of the sea. Large quantities of the roots are annually collected for exportation, in the Chinese provinces within the lofty range of the Himalaya. The best is that which comes by way of Russia, as greater care is taken in the selection; and on its arrival at Kiachta, within the Russian frontiers, the roots are carefully examined, and the damaged pieces removed."

Mr. Sweet has been "informed that the stems of the leaves have the same effect as the root; only, of course, a greater portion of them will require to be used. They may be made up in a small tart, like the stems of the common rhubarb." Culture as in the other species, covering the roots a little in very severe winters.—*Gar. Mag.* vol. v. p. 161.

information as to the medicinal qualities it possesses when raised there, compared with the imported, nor are we informed whether it can be used in deserts as the others are, or is valuable only on account of its medicinal virtues.

The Rhubarb has been used in the Northern and Eastern States for making tarts and conserves, but when first introduced there is uncertain, nor is it of any consequence to know. In the Southern States, we are not aware of a single instance of its successful culture prior to this time. It may, however, have been introduced, but certain are we, that in the neighbourhood of Charleston, it is altogether a new plant. It is, also, unknown, except by name, in all those sections of this State which we have visited. How it has happened that whilst it has been cultivated and used for some length of time so near to us, and must have been partaken of by very many of our citizens, it has never been introduced either into our private or market gardens, is one of those occurrences which we sometimes meet with, and are scarce able to assign a satisfactory reason for. It could not be its want of good qualities to recommend it, for wherever it is known, it is eagerly sought after as affording the earliest and certainly the most wholesome article that can be used for tarts, far surpassing most of the fruits used for that purpose. It is probable, we think, owing in part, if not altogether, to the great difficulty which it has hitherto had to encounter the first season, when raised from seed. The little then known, by us, of the habits of this plant, rendered its culture precarious: in fact, failure is certain to ensue, when the treatment is the same as that followed for other plants. In what way this was to be varied, required several experiments to test. Seeds sown and the young plants treated as is usual, that is, kept free from grass and weeds, and left exposed to the full influence of the sun, would thrive at first, whilst the heat was moderate, but as its intensity increased, they would gradually die off, and finally, not a single one would be left to reward the cultivator for his trouble and expense.

An improper situation of ground may also have had some effect in producing the result, although we are inclined to believe, that they could not be carried through our summers the first year from seed in any locality, if fully exposed to the rays of the sun. The obstacles to its

successful introduction and general diffusion among us, are certainly considerable, but we hope, are not insurmountable, and if we can place reliance on the experiments of two successive seasons, we have strong reasons to believe, that the principal difficulty which has hitherto retarded the extension of its culture, even in more favourable climates, can be overcome. There may be others to be met and conquered before we can successfully cultivate it here, but science and skill can accomplish much, and we hope the exertions of the members of this Society will not be wanting to aid in its introduction. With the hope that the little experience we have gained may be of service; we will give an account of the experiments made and their results, leaving it to others to determine what alterations they will make in such as they may institute.

In England, there appears to be no difficulty in raising this plant in any quantities; at least, we know not of a single writer who mentions any. In the Northern States, on the contrary, it must be partially protected, during the first summer, and we find Messrs. G. Thorburn & Sons, in their directions for its culture, recommending that a board be placed to the south side of the row, partly inclining over, which would protect it from the sun without depriving it of sufficient light and heat. This precaution is necessary only the first year, for it is said to be extremely hardy ever after. The mode recommended by Messrs. Thorburn & Son, would not, we are certain, answer in this climate, owing to the greater intensity of our heat. Fortunately for us, however, we have discovered that it will grow luxuriantly in perfect shade, in localities where the sun never shines. We shall have occasion to refer to this again when we relate that part of our experiment.

The first attempt we made to cultivate this plant was in the spring of 1831. On the 18th of March, we sowed seeds of the *Rheum rhabonticum* and *R. undulatum*. We sowed seeds also of other varieties, but as they did not vegetate, we shall omit noticing them. The ground selected was a light, dry and sandy spot, fully exposed to the influence of the sun. Another parcel was sown a few days after, on what the gardeners here technically call "medium ground," that is somewhat low, but yet not so much so, as to have any water lodge on it, from heavy falls of

rain. It might be called a sandy loam, in which, however, the sand greatly predominated. It was the termination of a piece of sloping ground, and was formed into beds of six feet width, by drains which served to keep the whole dry and carry off all surface water. The beds were prepared by having some well rotted manure spread over them, and spaded in. Rows were then made twelve inches asunder and about half an inch deep, and the seeds sown therein and lightly covered.

In about ten or twelve days they were up, and were fated at the very commencement to exhibit their hardness, for they had not been long up, (the oldest not more than three weeks, and youngest one week) when we were visited with one of those violent and destructive cold northwest winds, which destroyed almost every vegetable (sown that spring) on the farm, although the most of them were well protected, and in ordinary cases would have been preserved. The young Rhubarb plants were not in the least affected, and we are not aware that a single plant perished in consequence of it, although some were left unprotected. Scarcely had they escaped this danger when they encounter a heavy fall of rain, which at this early stage proved very destructive, beating down the young plants and burying them in the earth, by this casualty, we lost a large portion of them ; it, however, can always be guarded against.

The great difficulty which has to be encountered in the culture of Rhubarb in our climate, is from the great heat of our summers, and this proves peculiarly fatal to the young plants, if not guarded against. We accordingly endeavoured to mitigate it, by erecting temporary serenes over the beds—that, over those sown on the high ground was erected on the 18th of April, and consisted of a scaffolding three feet high, covered with pailings laid at intervals of from three to five inches. That over those sown on the medium ground, was not erected for several weeks after, and also, consisted of a scaffolding, but instead of being covered with palings, bushes which had lost their leaves were placed over. The object in both cases was to break the rays of the sun, and consequently diminish its intensity, without entirely excluding it from the beds. Light and heat were therefore afforded in sufficient quantities for all the purposes of vegetation. The

plants on the high ground continued to flourish until the very dry weather we had in May, when they commenced dying, and gradually disappeared one after the other, so that out of one or two hundred plants, not more than six or seven survived through the season. Those on the medium ground, continued to grow luxuriantly, and no doubt, would have succeeded admirably, had not an almost unprecedented high tide, in June, broken over our banks and penetrated to where they were planted, flowing into all of the ditches and partly covering some of the beds. Soon after the plants became sickly, and finally almost all perished—five plants only survived. These were manured in the spring. On the 31st of January, we found one plant sending up leaves, and on the 10th of February, leaves from all were generally through, and some of good size. The weather was mild, and peach and plum trees were in bloom—early in March they had progressed so rapidly, that had we not feared to injure the plants, we might have gathered them for use. On the 15th of March, occurred that spell of severe cold weather, which not only destroyed almost all vegetables, but even the branches of indigenous and exotic trees and shrubs. The fig trees in many instances were killed to the roots. Most of the Rhubarb plants were protected by small quantities of straw placed over them, but this was of little service, for it was blown from many of them during the night, and the greatest injury appeared to have been done by the wind, which possessed such a piercing coldness, that few vegetables could withstand it. From the 15th to the 20th, it was intensely cold, on the 17th, it froze very hard during the night, and on the 18th, there was ice of considerable thickness during the whole day in the shade. We feared much for our plants, but, to our great surprise, they passed unhurt through this unfavourable weather. Not a single plant was killed, and but two or three leaves, (which were just emerging, and of course extremely tender,) were injured;—these were of plants which had been imported and planted out about a month previous, not a single leaf of those which remained undisturbed where they first grew, was at all affected. These plants have continued to grow with considerable luxuriance during the present season, and we have had three gatherings from them.

Some of the leaves were exhibited at the horticultural exhibition in May last, and took the Society's premium.

Having received another supply of seeds last spring, we again sowed a parcel on the medium ground: from what we had seen of the growth of the plants last year, we determined to venture the whole there. It was sown on the same beds on the 24th of March, and came up in the course of a fortnight. The seeds were not good, and comparatively but a small portion germinated. The treatment of these plants was throughout the same as those grown last year, except that, instead of placing pailings or dried bushels over the scaffolding, green pine bushes were laid on, in such quantities as to exclude the rays of the sun, consequently these plants grew altogether in the shade, and had no light except what was admitted from the sides; yet, notwithstanding this, which would have proved fatal to almost all plants, these continued to grow with considerable luxuriance. We have succeeded far better this year than the last in growing them, as to size. In order to judge of this we will state, that a leaf which we gathered from one of the plants measured as follows—petiole nineteen inches, length of leaf upwards of twelve inches, (the end being broken off, the exact length could not be ascertained,) breadth ten inches, this was by no means the choicest, for it was not selected until after most of the leaves had decayed, and we think we saw several prior to that time which were larger. The leaves generally commenced dying in July, and by the last of August, many were entirely destitute of them, others had a few left. We at first thought that we had experienced a total failure, and that the plants were dying; but on examination, we found the roots perfectly sound, and the decay of the leaves was only in consequence of their having obtained their growth for the season. The rains in August and September, combined with the heat, have caused some few to put out leaves, generally, however, not more than one or two to each root, and these are small and feeble.

We have thus given all the information we are in possession of, relative to these two experiments. As yet, we have gone no further than the seed bed, and therefore, can say nothing of our own knowledge relative to their future management. Fortunately, however, ample instructions are to be found in all works on gardening, from

sowing the seeds to forcing the plants in winter. As the subject is an interesting one, we crave the indulgence of the Society if we trespass on their patience, whilst we give an abstract of the modes of management, selected principally from works which we believe are not in common circulation among us.

The following directions for its propagation and culture are taken from the Encyclopædia of Gardening:—
“ All the sorts may be raised either from seed or by dividing the roots. If from seed, which is the best mode, sow in light deep earth in spring, and the plants if kept eight or nine inches asunder will be fit for transplanting in autumn, and for use next spring. When the roots are divided care must be had to retain a bud on the crown of each section: they may be planted where they are finally to remain. When a plantation is to be made, the ground, which should be light and rather sandy, but well manured, should be trenched three spits or as deep as the subsoil will admit, adding a good manuring of well rotted hot-bed dung. Then plant in rows three feet wide by two feet in the rows for the *R. rhabonticum* and *palmarum*, and five feet wide by three feet in the rows for the *R. hybridum*. No other culture is required than keeping the ground free of weeds, occasionally stirring it during summer with a three pronged fork, and adding a dressing of well rotted manure every autumn or spring, stirring the earth as deep as possible. Such a plantation will continue good many years. Some never allow the flower stalks to produce flowers, and others cut them over as soon as they have done flowering to prevent the plants from being exhausted by the production of seeds. The former seems the preferable method, as the flower stalks of plants cannot, like the leaves, be considered, as preparing a reserve of nourishment for the roots.”

The Rev. R. H. Wilkinson, in the “Transactions of the Botanical and Horticultural Society of Durham, Northumberland, and New-Castle upon Tyne,” gives it as his opinion, that they ought to be sown much thicker than stated above. In a very successful experiment he made, the seeds were sown in March, and thinned in June, to twelve inches apart each way. In the autumn, the beds were covered three inches thick with manure, which was taken off in the spring, and the surface “pointed over be-

tween the rows," care being taken not to wound the roots. Numerous stalks were sent up in due time, "long, thick, and tender," and "as fine," he observes, "as he ever saw in England. As the leaves are the parts used and not the roots, the cultivator must endeavour to promote a production of the former, and not of the latter. This is best effected by having a soil "Not too deep, but very rich, 'and the subsoil perfectly dry, and as poor as may be. 'The first will cause the seed to sprout with great vigour, 'and encourage roots to spread near the surface, the 'second will hinder tap-roots striking deep into the soil. 'The plants should stand pretty thick, which by diminishing the light and air about them, will also retard the sending up flower stems, and consequently increase the number 'and strength of the leaves, which by their own shade will, 'in a great measure, blanch each other, and be thereby rendered tender and pulpy. The situation should be close 'and sheltered, where the plants will grow more rapidly, 'and the leaves be more succulent and less stringy than in 'a more exposed place, as exposure always has a tendency 'to increase the stockiness and strength of fibre of all 'plants which in this case evidently is not desirable. Another thing to be carefully guarded against, is that the 'crowns of the plants be not injured by frost in winter, 'as it greatly retards their shooting in spring. This may 'be securely effected by covering the beds in autumn with 'a dressing of rotten dung three or four inches thick, 'which will at the same time enrich the soil. In spring, 'it should be raked off, and the beds neatly pointed over, 'taking care, however, not to wound the roots."

The two extracts we have made will afford some idea of the modes of culture adopted in England for Rhubarb. The first is the most general; which will answer best in our climate, remains to be determined. We think, however, that the soil recommended is not the best adapted for us. We would prefer one as deep and as rich as possible, and rather moist than dry. Our opinion may be erroneous, but it is formed on what we have witnessed of the growth of these plants on dry and moist soils on our farm.

The propriety of growing the Rhubarb in shade, even in England, is evident from the following experiment, taken from the *Gardener's Magazine*. The writer

(Anthony Todd Thompson, Esq.) strongly recommends the *Rheum palmatum*, as superior to any other species for making tarts, it is not so early in the season, but yields leaves later than the others. It had not been a favourite, which he appears to think, owing to the small product yielded by the plants cultivated in the usual way. He remarks: "From the observations, 'which I have been enabled to make respecting the cultivation of the *Rheum palmatum* in market gardens, and 'even in the garden of the Horticultural Society, I am 'satisfied that the general stunted appearance of the plants, 'which is the chief objection made to this species, depends, 'in a great measure, on the stiffness of the soil, and the 'too free exposure of the plant to light. We are informed by Dr. Rehman,* who had the opportunity of seeing 'this species of rhubarb growing in its native soil and 'climate, the declivities of the chain of mountains near 'the lake Kokouor in Tartary, that the soil is light and 'sandy, and the Bucharians assert, that the best grows in 'the shade, on the southern sides of the mountains. I 'planted two roots of the *R. palmatum*, five years since, 'in the open part of my small garden, and found that 'whilst they continued fully exposed to the influence of 'the light of the sun, the leaves were moderately expand- 'ed only, and the foot-stalks not more succulent than 'those of the other species; but on removing them to a 'part shaded by rose bushes, the leaves, which have been 'put forth in each succeeding season, have been very lux- 'uriant."

What is particularly worthy of notice in this extract, is first, that the best is obtained in its native climate from plants growing in the shade; and, secondly, that the plants experimented on, did not flourish until they were removed from the influence of the light of the sun. If shade is so necessary in England, how much more is it so in our climate, where the heat is so much more intense. When we made our experiment on growing these plants in total shade, we had not seen this article, although this volume had been in our possession for many years; we, therefore, felt much gratified in meeting with an experiment confirming the correctness of the one we made. It will not

* Vide Mem. de la Société Impériale des Nat. de Moscow, 1809, tom. ii.

be difficult for us to find shade enough to grow as many plants in, as will be amply sufficient for private families. We would suggest, however, that the vine trained on high arbours, and open at the sides, in the manner described by Dr. Davis, in the third volume of the *Southern Agriculturist*, would afford much the best, yielding ample protection from the rays of the sun, without, in the least, obstructing a free circulation of air.

The leaves are fit for use when they are half expanded, but the market gardens leave them until they are fully so, as a larger product is thus obtained. By some, they are blanched, being supposed to be rendered more pleasant, and to require less sugar in preparing them for deserts. It is performed by placing pots, boxes, or any hollow vessel over them, or by earthing them up early in spring. By many, this is not done, being considered unnecessary.

(*To be continued.*)

ART. V.—*A few Remarks on the Genera, Amaryllis, Pancratium, Crinum and Hyacinthus; by ALEX. GORDON.*

"New-York, July, 1832.

*Dear Sir,—*From a firm conviction of the great good your useful publication must effect, in forwarding the interests of agriculture and horticulture, I am inclined to offer you a few remarks upon another branch, which I consider, as not being foreign from the purport of your periodical. I allude to *Floriculture*.

It afforded me the greatest pleasure, during my sojourn in the Southern States, last winter, to find so many ladies and gentlemen there, paying such attention to the delightful study of botany. This induces me to direct the attention of your readers, (which I hope are numerous,) to the above named splendid genera. Peculiarly rich as your delightful country is, in native productions, still there are many treasures, natives of foreign climes, which, when

grown in your gardens, under the influence of your genial sun, would both astonish and gratify. As I have returned to this country with the intention of spending a few years, and dedicating my time during that period, in collecting plants, &c. I shall occasionally, if it meets your approbation, tender a few remarks on such ornamental plants as I consider best calculated for the climate. At present, I propose confining myself to four genera, viz. *Amaryllis*, *Pancratium*, *Crinum* and *Hyacinthus*. The three first genera are included in the natural order *Amaryllidæ*, the last in *Asphodelæ*.

To those unacquainted with these beautiful gems of nature, I cannot convey the most distant idea of their beauty nor the diversity of their colour, in the most splendid and vivid hues. In England, we esteem them as among the richest of Flora's treasures, but when I consider, to what a superior degree they might be grown in the Southern States, I sincerely hope you will exert your influence, and dedicate occasionally, a corner of your most useful work, in disseminating a taste for those delightful tribes.

Amaryllis.—This beautiful and interesting genus, frequently produces flowers for a great part of the year. There has been raised in England, within these twenty years' past, (principally by Mr. Robert Sweet, the distinguished author of several valuable botanical works,) an immense number of superb varieties, far surpassing in splendour the originals from which they were derived, and fortunately those hybrids have another point in their favour; they bloom more freely than the parent, which makes them very valuable. There is one circumstance in their cultivation, which I allude shall to: several of the species and varieties will answer much better for being taken up, as they begin to wither in the leaves, and kept dry till they show flowers; but, as soon as the flowers appear they must be planted, still there are sorts which this treatment does not answer, such as *A. reticulata*, *striatifolia*, and the *hybrids* raised from them, nor the *aulica*, *calyprata* and *solandriæfolia*—these had all better remain in the ground. Whereas *A. regina*, *erucata*, *rutila*, *accuminata*, *fulgida*, *Johnsonia*, *Psittacina*, and the mules between them are much better taken up.

A sandy friable loam is considered the best soil for the *amaryllis*, but any soil if not of too binding a nature will,

in my opinion, answer for them in your climate, decomposed vegetable mould, say one-fourth would no doubt be very beneficial.

Pancratiums.—A name given by the Greeks to a species of *Scilla*. This is a free flowering genus, several of the species are very handsome and fragrant, easy of culture and freely propagated, as they multiply by suckers, or from seeds, and if any plant happen to lose its heart, if it be kept dry, it will throw out abundance of suckers, which is the readiest way to propagate the genus. Sandy loam and vegetable mould is well adapted for growing them to perfection.

Crinum.—This is a fine stately genus, some of the species are truly magnificent. The *C. amabile* is a most splendid species. As well as being handsome, these plants are delightfully fragrant, and will perfume the air to a considerable distance. They grow best in rich light soil, and may be propagated in the same manner as the *pancratium*. For the genus,

Hyacinthus, your climate is peculiarly adapted. The luxuriance of those I saw in several gardens in the South, convinced me beyond a doubt of this fact. There is no question, that in addition to them, all the *amaryllis*, natives of tropical climates, all *crinums* (and probably) all *pancratiums*, will also equally answer. And these are treasures which present us with a group of vegetation so lovely as to have excited admiration from the most remote period to the present day. “In foliage they possess a uniformity of figure which is very singular, in colour they vary from white and yellow to deep scarlet and azure blue, in fragrance, they vie with the violet and primerose.”*

Yours, respectfully.

ALEXANDER GORDON.

* See *Encyclopædia of Plants*, by Mr. Loudon.

ART. VI.—*On the Culture of the Tulip; by G. B. SMITH.*

The following extract is taken from a private letter addressed to us; as it contains some excellent directions for cultivating the Tulip, we have taken the liberty of publishing it.—*Ed. So. Agricul.*

“I believe you in the South do not understand blooming tulips; at least, I never saw a good one there, when I was in your country some twelve years since. Make a bed four feet wide, and long enough to contain your bulbs set six inches apart each way. The ground must be spaded, and made fine, and rich with vegetable mould. In planting, make a hole four inches deep for each bulb, and two inches diameter; into which put a little white sand—just enough to surround and cover the bulb—so as to prevent its touching the rich mould. Then fill up the holes with the common soil of the bed, covering the bulbs three inches deep. Although tulips are found of drawing nourishment from rich soil, by means of their radicles, they do not do well if the bulb touches it. They should be planted in December, at the latest—best in October or November.

When they begin to show bloom, they must be shaded from the hot sun, and protected from heavy rains. This you can do by driving four stakes in the corners of the bed, three feet high, and nailing slats on them over the sides, to enable you to spread a mat over them, which you can roll on and off, in the manner of an awning. Keep off the mat in cloudy weather, and mornings and evenings, and nights, but be sure to keep it over them during the hot sunshine. For all this they will pay you in the spring.

Yours, &c.

GIDEON B. SMITH.”

ART. IX.—*Account of the mode of cultivating Corn, Cotton, &c. near Paris, Tennessee; by JAMES JONES.*

We are situated near the 36° North latitude; where it crosses the Tennessee river, our land is, generally speaking, undulating—not so level, but bad cultivation permits the land to wash in many places. Our produce is corn, cotton, tobacco, potatoes, oats, wheat and rye, &c. &c.

Forty bushels of corn per acre, I suppose, is the average crop; some think they make fifty or sixty—though I do not. The corn is planted from March to 15th June, at four to four and a half feet from hill to hill, and from two to four stalks left in the hill; the plough is used almost entirely; and but little hoeing done to it—never more than two given, and more often, none. There is no manure used for corn, or, indeed, any thing but our gardens. We usually strip the blades from the stalk as soon as the shuck on the corn begins to whiten, or as soon as it is hard enough; the blades are tied up with the blades, and stacked around a pole twelve to eighteen feet high in single or double rows. When dry enough, the corn is gathered and hauled to the crib, the shucks taken off and put in the crib;—the shucks, by most, are put in a pen to feed the stock—by others, they are permitted to rot on the ground.

The cotton is planted in drills, four to four and a half feet apart—five furrows thrown together, and opened with a gofer, or helve of wood, made for the purpose;—three to five bushels of seed are sown, and covered with a small rake, block of wood, or board, drawn by a horse, in the manner described in the ‘Agriculturist’;—as soon as it comes up, the grass is hoed off, and picked out from among the cotton with the fingers—(some put their geese in the field at this stage, and make a small boy follow after them very slowly, so as to make them pass all over the field, and they say that ten will pick as much grass as a hand will—I never tried it, though I have seen it done; they must be driven to water every day.) As soon as the grass is again up, the plough is run with the bar next the cotton, and dirt thrown into the alleys, hoed and picked again, and partially thinned; the third time, the stalks are thinned to eight inches in the row, and cultivated with the plough, or skimmer, cultivator, rake, &c. There are many different ploughs here; every one has his own notions, and consequently has his plough shaped to please himself; the bar-shear, dagon, half-shear, gofer, &c. &c. with their different parts, and selections from each; the gofer and skimmer are both used on the same helve, and worked together at the same time. We usually commence picking out about the 1st October, or sooner, and pick from twenty to one hundred and twenty, according to

the hand—eighty to one hundred is the common day's work, at the best time. Whitney's gins are the only kinds used—I never saw any other. We usually calculate to work about seven acres in cotton, and five to seven in corn, besides potatoes, oats, &c. &c.

Tobacco is not much cultivated: the seeds are sown in good rich new ground, about the 1st to 20th February, the ground is previously burnt, and if they do not thrive, or if the fly injures them, they are watered with water in which stable or fowl-manure has been soaked. The land in which they are to grow, is made into hills about six to twelve inches high, at any time after the frosts are over. The planting commences in April and continues till June; cultivated in the same manner as corn. The bottom leaves are stripped off when about twelve or fifteen inches high, about four to six inches from the ground, and topped to ten leaves on each stalk. The stalks stand separate, at about four feet apart, it must be suckered, and the worms taken off with the hand: or, some drive their turkeys into the field, and they will catch the worms; they are managed in the same way as the geese among the cotton. Judgment is required to know when it is in proper stage to cut. The curing is managed according to the quality of tobacco required, which requires great judgment and experience. It agrees with cotton very well, as the time required to manage it is a damp time, when cotton cannot be picked out. Many plant it among their cotton to fill up the vacancies occasioned by cotton dying, &c.

The wheat is sown among the corn or cotton, from the 15th October to the 15th November. The early wheat does best with us; it is subject to rust, fly, &c.; fifteen to thirty bushels is a common crop.

Rye and oats grow as fine here as in any country I ever saw. Rye sometimes grows as high as eight feet, oats as high as six; rye is very common at six to seven, oats at five; they are remarkably heavy, though I cannot say how many bushels, as we usually cut them up without threshing them out, and feed them to stock.

Our horses and cattle are miserably abused; many have a rail-pen for their horse to stand in, and none have shelters for their cattle. The best stables are made of log-pens, without any thing in the crevices to exclude the cold and rain. We have many diseases, consequently, among

us; the most common among the horses are the big head, the big jaw and shoulders, swinney, spavin, blind-staggers, and glanders, &c.

I have said enough, and fear your patience will be exhausted before you get through. Yours, &c.

JAMES JONES.

**ART. VIII.—*Further Queries relative to Rice, addressed to
“Q. E. D.;” by AN OBSERVER.***

Mr. Editor,—I, with pleasure, acknowledge myself indebted to your friend “Q. E. D.” for his answers to my questions addressed to rice-planters. I feel corrected and improved by his superior knowledge of the subject. In his answer, however, to my fifth quere—“Whether flowing the field occasionally with brackish water in the winter, will not improve the soil by the slight addition of salt as well as mud?”—he probably was not accurate in his recollection of my words, or he would not have replied, “But that it would be advisable to put salt water on the land, with the view of enriching it, is by no means so certain.”

In my sixth quere, the object was, by alternately flowing the field and exposing it to the weather, that the stubble, grain, grass and seed, should be rotted, and, thereby, more effectually enrich the field, than by the present plan of burning, and constant flowing or constant exposure to the air. I proposed flowing at the full and new moon, because the tides are then highest, and most likely to enrich the field by deposit of their sediment. I thought, too, that such periods would be always most accurately observed by the trunk-minder, and never neglected. Your friend has improved on the suggestion, by observing that the water becomes clear in a day or two, according to the serenity of the weather, and should then be gradually drained off, lest the banks be washed by keeping on the water longer. I think, however, that it will generally take a week before this is completed.

AN OBSERVER.

ART. IX.—*On the cultivation of English Peas as a field crop; by AN EXOTIC.*

Mr. Editor,—In a previous number I promised to communicate to you my impressions respecting the cultivation of green (or English) peas as a field crop. One of the great drawbacks to this, or any other kind of cultivation which is not connected with cotton, corn, rice, or potatoes, is the want of a suitable enclosure made previously to the season for the sowing or planting of these extra crops. Such is the perfection of the charming climate of South-Carolina, that there is no month in the year, but what some valuable seed may be germinated, to the great advantage of man and beast. As an evidence of this fact, we have only to advert to the Gardener's Calendar in our Almanacs, and see the great variety of valuable plants and seeds, suggested for garden use, which can, with very little more difficulty, be enlarged and made more extensive in our fields. I planted, about the 6th February last, seven or eight varieties of English peas, amounting to three bushels, in the following manner: A furrow was run with the plough, and manure on each side of the bed where the cotton-stalks of the last years were left standing; the peas were then drilled and lightly covered with the plough, a hand following with a hoe, to dress such places as have been left uncovered. These required a weeding and one hauling with the hoe. They were gathered 26th day of May, in the following manner: The vines were pulled up and suffered to dry two days in the field; they were then taken home in sheets, and threshed, which required little labour, as they shelled with great facility. A severe frost on the 17th of March injured those which were in *blossom*, materially. Those which were not so forward, escaped the effects of frost. The land was high, poor, and sandy; the season remarkably dry and cold. The consequence was that I made but twenty bushels to four acres. Sections of the patch which diverged to low, flat soil, bore abundantly, and, there is no doubt, I should have made twenty bushels to the acre, had this kind of soil been selected.

This experiment has afforded me the following conclusions, that English peas can be planted at that period of

the year, when scarcely any thing else will repay the labour. They require little time for gathering and preparing for food. I boil them as the common cow-pea; and the hands expressed regret when they ceased as an allowance. The vines, also, were greedily devoured by the stock, and at that season of the year, too, when something in the way of fresh hay is very desirable. There is no doubt but that flat lands are best adapted to their growth in the spring of the year, as, in nine cases of ten, there is a drought in April and May.

Of all the varieties which I planted, the dwarf pea seemed most fit for field cultivation, as their stems near the roots were so well covered as not to be injured by dry and cold winds, as was the case with the tall peas, which, likewise, invariably suffered when not supported by a cotton-stalk. In planting the dwarf pea, I would sow them in drills, (the land being previously prepared by the plough,) from ten to twelve inches apart. I believe that there is no grain crop which will admit of harvesting as early in the year, and in so short a time from being planted, at this season, as English peas.

To preserve the seed for another year, it is necessary to spread them in the sun for three or four days. Then pour them in a dry cask which is strongly flavoured with spirits, otherwise they will soon be devoured by an insect familiar to every one who has every attempted to save English peas-seed.*

About the 1st of March or last of February will be early enough to sow these peas, as they suffer less by our late frosts, which injures them while in blossom.

Yours, respectfully,
EXOTIC.

* The cask should be, then, as tightly closed against air as though it contained spirits.

PART II.

SELECTIONS.

ART. I.—*Rust in Cotton.*

[FROM THE SOUTHERN PLANTER.]

Read before the Board of Directors of the Georgia Agricultural Society; addressed to their Secretary

Sir,—Since observing in the second number of the Southern Planter a notice from your Society requesting information in regard to the *Rust in Cotton* as popularly termed, I have been induced to make some inquiries and observation on this important subject, which I beg through you to present to the notice of the Society.

Considering the term *rust* as applied to the oxyde of metallic substances which is the only application properly known to the writer, there is perhaps no greater *misnomer* in our language than such application to the animate living blight that has passed over the cotton fields in our vicinity. Within a few years the writer recollects one peculiarly fatal season to the crops, to which the present term was applied, and from which this is doubtless derived. The wheat crops in the Southern States have been long known to suffer occasionally with a disease called *rust*! The wheat crops in the Southern States have been long known to suffer occasionally with a disease called *rust*! The planter when the first disease of this character appeared in the cotton crop, was doubtless induced from some resemblance in the effect rather than appearance to transfer so popular a name to an origin so very dissimilar.

So far as our experience in this matter goes it has been noticed that the two years in which this disease has appeared, a very abundant share of rain in the spring season was followed by a long drought during the summer; hence vegetation sprang up with unusual verdure and the earth was prematurely shaded with a luxuriantly growing crop. The growth being in this state arrested from above by the dry and scorching heat of the sun, while the earth protected by its luxuriant covering, refused in equal progress to assist the process of evaporation, numerous insects seek the protecting shelter thus afforded them, and with-

in this safe retreat the generation of animaleculæ commences with a rapidity which none but the naturalist whose laborious researches have been directed to these objects could ever divine. The first appearance discoverable of the approach of the destroyer is a small globular liquid substance resting on the stem of each leaf, of about one-third of an inch from the expanding point of its filmy covering, on removing of which substance a small puncture will be discovered in the stem as if made with the sharpened point of a small knife or lancet. This incision is supposed to be made by the parent insect, and the juices to be drawn therefrom an intended deposit for the ova and subsistence for the progeny until such period as the animal functions become sufficiently matured to enable it to derive its support from the leaf itself, the commencement of which process is the destructive operation of the disease.

It is known to naturalists, as a fact favourable to our theory, that the decay of all substances, either vegetable or animal, is attended by a vast creation of animaleculæ, and indeed that each body of putrid or decaying matter even down to the drop of stagnant water is, when placed before the microscope, a miniature world of animated creation as perfect in its form and as regular in its attendant evidences of organization and circulation as are the more gifted beings derived from the same divine origin, known as man. It will be further observed that the greatest destruction in the cotton crop by these minute beings will be found in fields which have been the fewest years in cultivation, and where abundant decay of the primitive growth is yet left in the fields or adjacent thereto.

These animaleculæ in their perfect state, when rioting in the luxurious growth of the cotton leaf, present an appearance to the naked eye somewhat resembling what is usually known as the red bug, except being of a less bright colour and not quite so large. Their ravages are confined mostly to the underside of the leaf where they are generated, and from whence they eat the vegetable substance between the fibres or branching particles entirely through. Exposure to the rays of the sun will destroy them in a few moments, as may be seen by detaching a leaf and exposing the under part to solar heat. But as this is a process altogether impracticable to any considerable extent, the only means which Providence has directed to their timely destruction is a plentiful season of rain, after which they entirely disappear. This in the present season, as many of our cotton fields bear witness, came too late to arrest the evil before the destruction of the labours of the industrious planter.

A very intelligent planter whose views on this subject I was induced to learn, suggests as the only remedy against so deadly a scourge to the cotton plant, that the breaking up of the cotton lands in the winter season, and thus exposing in their tor-

pid state those insects concealed in the soil, or in roots of vegetable substances to the action of frosts might effectually extirpate them; but the writer is more induced to believe the deposit of the ova in the first stage as noticed in this essay, is the work of a fly or some insect whose wintry torpor is more generally confined to the bark or bodies of decayed trees from whence they issue in the spring season where they generate in myriads, on the leaves of plants, and what few escape the destructive influence of the seasons, arrive at the parent state at autumn to continue its ephemeral existence as successor to its parent until the following season in the same convenient asylum—thus so far as the industrious agriculturist is concerned we can only look to a Providence, to whose behests we should bow in submissive silence, while we are left to witness and contemplate the minute organization of these tiny but destructive beings, without obtaining a remedy for the object of our anxious inquiries.

ART. II.—*On Selecting Seeds.*

[FROM THE GENESEE FARMER.]

When a farmer is once convinced of the correctness of the saying, that with plants as with animals, every subject has a tendency to produce its like, then the importance of selecting seeds for planting becomes evident. This should be kept in mind during the month of May, which may with propriety be called the seeding season. If bad varieties of seeds are planted, a bad quality of produce may be expected; and on the contrary, if good varieties are planted, the same may be expected in return. This should be remembered with regard to every thing planted or sown upon the farm. In this respect many are what some term "penny wise and pound foolish." They would omit sowing a good article because it costs too much. With Indian corn it would make but one shilling difference per acre, whether the seed cost one or two dollars per bushel; with some other crops the difference might be greater, but in no instance does the difference of seed compare with the difference of the produce. Beside the inducements to select choice seeds for profit merely, there are others the present season which will have some weight with many, viz: to gratify a laudable ambition to excel. It is plainly to be seen that there is a conviction of the importance of forming Agricultural Societies throughout the State; and when

these are formed, an exhibition of choice articles follows, and where is the farmer who will not be proud of a premium, however small, when awarded to him for the production of a choice and valuable article? We have seen a silver pitcher, a sugar bowl, or silver spoons, which were so obtained, exhibited by the family of a farmer, with more pure and heartfelt satisfaction than ever was inspired by the presentation of a sword to a General, or the order of Knighthood to a conqueror by the proudest monarch of Europe.

The following observations on the different varieties of seeds may not be amiss:

Oats are the first crop put in by most of our farmers. Of this grain we find the common white and black, the tartarian, which is a coarse strawed variety, with the grain hanging altogether upon one side of the panicle, and the potato oat. We consider the last the most profitable variety on good soils—on poor soils the tartarian oat produces a greater length of straw than others, but the grain does not separate from the straw as easily as the common oat.

Of the varieties of Indian corn, they are so numerous we cannot speak with precision. Almost every section of country has its peculiar variety according to the nature of the soil and climate. It is an object to select those kinds which will ripen before the early frosts. For this section of country* we believe the eight rowed yellow corn with flat kernels is mostly preferred, both for its early maturity and abundant produce. But not only the shape of the kernels and ears, but the colour of the grain may be changed according to the fancy of the cultivator. In selecting seed, those ears which grow upon stalks producing two or three ears should always be preferred. Every good farmer will be careful to plant a small quantity of sweet corn, not only on account of its superiority for boiling during summer, but for its excellency during winter.

In selecting potatoes for planting, too much care cannot be used, and due reference should be had to the uses for which they are designed. Some of the choicest potatoes for the table are not the most abundant bearers; but yet, when they are designed for market, the quality frequently compensates for the quantity. For the table we recommend the Pink-eye potato, the Mercer, the Soult St. Marie, or Black Kidney, and the Foxite: for stock, the large yellow and copper coloured varieties, as these are early and great bearers.

For garden vegetables, much depends upon a good variety of seeds. One of the first seeds sown in most gardens is early York cabbage. In choosing this seed, the imported at present is to be preferred. For later kinds, the late Drumhead, the Savoy and Red Dutch are commonly preferred. The Drumhead forms

* Western part of New-York.

large coarse heads—the Savoy does not head as well, but the quality is much finer, and the Red Dutch does not head well, but the small heads are delightful for pickling. The Cauliflower is the most delicate of all the cabbage family, but this does not flower well during the heat of summer, and it is only during the months of September and October that we find them in perfection in open ground. The Cape Broccoli appears to succeed better during warm weather than the Cauliflower: and fine cones of it may be seen in the month of August.

In cultivating onions for family use, a good variety seem indispensable. The large red onion is the most productive—next the yellow, then the white Portugal, and lastly, the small silver skinned; the delicacy of flavour of each is in an inverse ratio to their production. For pickling, the silver skinned is altogether preferable to any other.

Of parsnips we have but one variety, although there are many different names attached to different parcels. Parsnips thrive best in a deep soil, rather damp than dry.

Of beets we have an endless variety, as they are inclined to sport continually, producing all shades of colour, from blood red to white, and all shapes from the flat or turnip beet, to the long Mangold Wurzel. Those who wish early beets, should select the turnip variety: but the yellow is allowed to contain the most saccharine matter.

Carrots, as a field crop, are productive and profitable; they are but moderately used in the kitchen. The long orange variety is preferred by most cultivators, either for the field or garden.

A few vegetable oysters should be grown in every garden, as they form an excellent substitute for those from the Atlantic.

The variety of garden and field beans cultivated with us, are innumerable. We prefer for this section of country, the early China, bush bean, and the horticultural pale bean to all others, both for goodness and productiveness. Our seasons are not long enough to perfect the Lima beans which succeed so well with our Southern brethren.

Cucumbers—we have all the intermediate varieties between the long green Turkey, and the short yellow frame. The former are preferred by most for pickling, and the latter the table.

The varieties for melons are beyond description: those with green flesh, as the Green Nutmeg, Corsican, &c. are considered superior, but they do not ripen as early as large Roman melons.

ART. III.—*On the Culture of Potatoes.*

[FROM THE LONDON HORTICULTURAL REGISTER.]

Gentlemen,— Your correspondent, Vigorniensis, has intimated a wish to be informed of Mr. Knight's method of planting potatoes; and you, in a note, have stated your intention shortly to furnish the desired information. I am far from wishing to trespass on your province, or to deprive your readers of that instruction which cannot fail to be derived from the perusal of papers written by horticulturists of your high practical attainments. But as I have long since apprised you of my intention to send you a paper on the culture of potatoes, at a proper period; as that period is now at hand—and particularly, as my correspondence with our enlightened President, Mr. Knight, has placed me in possession of directions for planting that noble root, in his own handwriting; for these reasons, I am inclined to believe that you will permit your friend to become your substitute on the present occasion, and place before your readers a faithful and verbatim extract from Mr. Knight's letter. The object of that illustrious man has always been, to give publicity to every species of really useful information, and therefore I do but further his views, when I give extent to those directions with which he personally honoured me; and you, gentlemen, are doubtless in possession of facts whereby to substantiate that which I now adduce.

Mr. Knight's general rules, as I find them in a letter now before me, are these:—

He first observes, “I obtained from the Ash-leaved Kidneys, last season, (a bad one, 1830,) a produce equal to 670 bushels, of 80 pounds each, per statute acre; and I entertain no doubt of having as many this year. To obtain these vast crops of the Ash-leaved Kidney, I always plant whole potatoes, selecting the largest I can raise; and for a very early crop, those ripened early in the preceding summer, and kept dry. I usually plant them on their ends, to stand with the crown-end upward, and place them at four inches distance, from centre to centre, in the rows—the rows two feet apart, and always pointing north and south.

“I plant my large potatoes much in the same way, with wider intervals, according to the height which the stem attains; thus, one which grows a yard high, six inches distance from centre to centre, and three feet six inches, or four feet between the rows, never cutting any potato; nor planting one of less weight than a quarter, but generally half a pound. By using such large sets, I get very strong and large plants, with widely extended roots, very early in the summer.

“The blossoms take away a good deal of sap, which may be better employed in forming potatoes, and whenever a potato affords seeds freely, I think it almost an insuperable objection to it. As a general rule, I think potatoes ought to be planted in

rows, distant from each other in proportion to the height of the stems. The height of the stems being full three feet, the rows ought to be about four feet apart; and the sets of the very largest varieties planted whole, never to be more distant from centre to centre than six inches. By such mode of planting, the greatest possible quantities of leaf (the organ, by which alone, blood is made) are exposed to the light."

The philosophy of these able and simple directions may be shortly explained; it consists in the exposure of the utmost possible surface of the respiratory organs (the leaves) to the agency of the electrising principle of the solar light—and of corresponding breadths of soil, to the influences of air and heat; so that the roots may be enabled to extend right and left, to a distance somewhat exceeding that of the highest of the stems and foliage.

That astonishing crops have been produced under such a method of planting, has been ascertained by many. I too, have experienced its efficacy, as the following results will testify.

The potato, called the *Early Champion*, was that with which began my experiments, early in March, 1831. The soil was that of a pasture—a deep brown sandy loam, upon a chalky sub-soil, approaching to marl. This soil had been trenched in the autumn to the depth of two feet, and the turf was inverted at the bottom of each trench. About eighty pounds of these potatoes were planted whole, in rows two feet asunder, running north and south, the sets about six inches apart crown from crown; but as I could not obtain a sufficiency of the variety at the time, I was constrained to employ such as I had, and therefore the size of the potatoes was not attended to. The rows were weeded early, and the stems advanced regularly till the fatally destructive 6th of May, when the frost destroyed and blackened every leaf that had fairly emerged from the surface. Thus I lost all the benefit that would have been otherwise derived from the early developed leaves; and consequently, a considerable weight of the advancing crop. In a week or ten days, however, fresh shoots were protruded; and as the stems advanced they were deeply earthed up, that is, till the whole piece of ground had the appearance of so many ranks of ridges, the intervening spaces being twelve inches deep in the centre. This one effectual earthing-up sufficed; and the crop attained perfect maturity in due time. The total yield of potatoes (which were, for the greatest part, of a fair average size, and of most excellent quality, mealy, and fine in flavour) was 576 pounds.

The *Early Frame Potato*, planted the first week in March, was the subject of the second experiment. I had procured one peck, weighing 14 pounds, and the tubers were cut into small sets, with from one to three eyes each. The sets were planted in rows, pointing north and south, two feet asunder, the sets being four inches apart in the rows. The site was a garden-plot,

four yards by seven yards and a half, *i. e.* thirty square yards. The sub-soil was a strong stiff loam, and this was brought to the surface by deep trenching, just before it was cropped. This plot suffered also from the frost above alluded to. The final yield was very great, (259 pounds) but the potatoes were far from being regular as to size: a great portion were small, weighing little more than one or two ounces each, occasioned, I doubt not, by cutting the tubers into small sets.

The third experiment commenced on the 25th of March, when I was enabled to procure a small supply of a variety styled *Early Champions*, but which was evidently far from true to its kind. The potatoes were planted by the side of the first plot of Champions, in rows, two feet six inches asunder; the sets six inches apart, crown from crown. The total yield, digged up between August 25, and September 18, 1831, was 1029 pounds.*

General deductions from facts: First, I find that little or nothing is gained by planting before the middle of March; for if a frost destroys the leaves as it did those of my first-sown Champions, a great loss in the product of the tubers must inevitably be experienced. Second, early ripened potatoes will yield an earlier crop than others of the same variety, which have come to maturity at a later period of the preceding season. My first Champions were produced by myself, from a few roots given to me by a neighbour, in June, 1830, when I obtained possession of the property that I now occupy. The land required to be trenched, and therefore the potatoes were not in the ground until the last week of the month; hence they scarcely ripened before the frosts set in. The eighty-four pounds planted in April had been produced at the usual season by a farmer; and they came in very early, and yielded almost double the quantity of those first planted. It is but just, however, to state that we commenced digging the latter as early young potatoes, in July; and therefore, scarcely two-thirds of the crop remained to attain perfect maturity. Third, Ash-leaved Kidneys, above all others, require to be planted whole. If they are not, many of them may never germinate at all. I tried an experiment during last year, and it was decisive in its result. Henceforward I never intend to plant a cut set of this potato, nor a whole one of very small size. I trust that my experiments on each variety that I plant, during the current season, will be conducted with a degree of precision and exactitude that may enable me, on a future occasion, to announce their particular routine and final results in a way that shall leave no doubt of the efficacy of Mr. Knight's mode of culture.

With all good wishes, believe me, gentlemen, your sincere friend.

G. J. T.

February 13, 1832.

* The blossoms of every sort which produced any, were mostly pinched off as they appeared.

ART. IV.—*Grafting.*

[FROM THE GENESEE FARMER.]

As the season for commencing this operation has arrived, we shall repeat our exhortations to farmers and gardeners, not to omit it, neither to employ strangers to do it for them. There was a time when natural fruit in this section of country would command a high price; but that time is past, and those who would have their orchards profitable at this time, must cultivate good fruit. Many put off this operation from year to year, because they have not the money which they can conveniently spare to pay for having it done. This should not deter any one, for there are very few of our farmers or gardeners but what can find time to make all the necessary improvements in their fruits, if they will put themselves about it. It does not require any very heavy expenditure of money or time to convert a very indifferent orchard, as regards the quantity of fruit, into one of the choicest varieties, in a few years. The idea prevails with many, that to graft or inoculate fruit trees, requires a skill that but few attain to—that there is a great deal of mystery about it—something extremely difficult. If you were to ask them if they could make a bow-pin, a pig-yoke, or cut a whip-stalk, they would almost take it as an insult; but if you were to ask them if they could graft or inoculate their fruit trees, they would answer “that they did not understand it;” and yet, to make a pig-yoke, requires more ingenuity than to graft or inoculate trees; and a man must be very dull who could not learn either in five minutes.

The truth is, the want of improvement in our orchards arises from a careless way many run into, of putting off things until to-morrow which should be done to-day;—of leaving things to chance, whether it will be profitable or not, and neglecting means and calculations to make them so. Cultivated orchards, in this vicinity, are very profitable; uncultivated ones bring but a moderate income for the land they occupy.

We will give a few directions for those who have not attempted or attended to the cultivation of their orchards, and beseech them to make a beginning this present season, when they will find that a few experiments will render it a pleasant amusement, rather than labour, which will be attended with a handsome remuneration. The more common kinds of trees to be grafted are the apple, pear, quince, cherry and plum. Scions of these should be cut before the buds are too far expanded, and kept in a cool and damp place, where there will neither be dried, or their buds so swelled as to be injured. Having the scions of such varieties of fruit as it is desirable to propagate, some wax should be pre-

pared by melting together bees-wax, rosin and tallow, and when melted, dip into this wax pieces of thin, old cotton cloth, with which to cover the wounds when the grafts are set. It is not very material as to being exact in the proportions of the ingredients in making wax, as some prefer one proportion, while others use that which is proportioned differently, with equal success. Equal parts of bees-wax and rosin, with half the quantity of tallow, is given by some as suitable; others use one part tallow, two parts rosin, and three parts bees-wax, but either we consider will answer: and we have found the most convenient way of using it to be to tear the rags to be used into strips about one inch wide, and roll them up like webbing and dip them in the melted wax, which will so fill them that when a piece is wound round a graft and stock, it will make the covering air and water tight, two things essential to the success of the scion. Grafting may be done from this time until the month of June; but the last of April may be considered the proper season. Scions taken from the tree before the buds are burst, and set immediately, are found to do very well; and when they are near the place where they are to be set, saves the trouble of taking care of them between the time of cutting and setting. New beginners will find the most simple mode of grafting to be that denominated whip or tongue-grafting, the stock and scion both being cut slanting, and a small lip raised by a cross cut, both parts being pressed together and covered by winding the strips of cloth as above mentioned. When the scions and stocks are in good order, there is not as much difficulty in making the scions live, as there is in removing trees and having them succeed. In addition to grafting, there are many kinds of fruit trees and vines which may be propagated from cuttings; as the quince, the mulberry, currents, vines, &c. Most of these thrive best when planted out in the fall; but such as have neglected that season should not omit doing it this spring. We think that even parents, who have not a taste for horticulture themselves, should endeavour to prejudice their children in favour of it, as a precaution against the besetting evil of the day, *intemperance*. When persons become fond of horticulture, they generally become fond of fruit; and it is said, very few who have a taste for fine fruit, ever become *intemperate*: if this is true, what an inducement for the practice.

ART. V.—*Operation for Accelerating Vegetation.*

[FROM THE NEW-ENGLAND FARMER.]

Quickening vegetation by the form of surface, consists in forming beds or banks in an east and west direction, and sloping to the south, forming an angle with the horizon, which in garden soils, cannot well exceed 45 degrees, because if made more steep, the soil would be apt to crumble and roll down. On beds so formed early sown crops, such as radishes, peas, turnips, lettuce, broccoli, &c. will come much earlier, and suffer less from severe weather than those on a level surface. The north sides of such beds or ridges may be used for retarding vegetation, when it is wished to bring crops to maturity late in the season.

Hastening vegetation by shelter and exposure to the sun, is the quickest and probably only primitive mode of accelerating the vegetation of plants; and hence one of the objects for which walls and hedges are introduced in gardens. A May-Duke cherry, trained against a south wall, and another tree of the same species, in the open compartment of a sheltered garden were found on an average of years to differ a fortnight in the ripening of their fruit. In cold, damp, cloudy seasons, they were nearly on a par; but in dry warm seasons, those on the wall were sometimes fit to be gathered three weeks, before the others. It may be here remarked that though in cloudy seasons those on the wall did not ripen before the others; yet their flavour was in such seasons better than that of the others, probably from the comparative dryness of their situation.

Accelerating by soils is effected by manures, of all sorts, especially by what are called hot and stimulating manures and composts, such as pigeons' dung for cucumbers, blood for vines; and in general as to soils, lime, rubbish, sand and gravel, seem to have the power of accelerating vegetation, to a much greater degree than rich clayey or loamy soils, or bog or peat earth.

Acceleration by previous preparation of the plant is a method of considerable importance, whether taken alone or in connexion with other modes of acceleration. It has long been observed by cultivators, that early ripened crops of onions and potatoes, sprout, or give signs of vegetation, more early next season than the late ripened crops. The same has been observed of bulbs of flowers which have been forced, which will grow much earlier next season than those which have been grown in the open air. It was reserved to T. A. Knight, however, to turn this to account in the forcing of fruit trees, as related in a paper, accompanied as usual by what renders all the papers of that eminent horticulturist so truly valuable, a rationale of the practice.

“The period which any species or variety of fruit will require to attain maturity, under any given degrees of temperature,

exposure to the influence of light in the forcing-house will be regulated to a much greater extent than is generally imagined, by the previous management and consequent state of the tree, when that is first subjected to the operation of artificial heat. Every gardener knows that when the previous season has been cold, cloudy, and wet, the wood of his fruit trees remains immature, and weak abortive blossoms only are produced. The advantages of having the wood well ripened are perfectly understood; but those which may be obtained whenever a very early crop of fruit is required by ripening the wood very early in the preceding summer, and putting the tree in a state of repose, as soon as possible after its wood has become perfectly mature, do, as far as my observation has extended, appear to be at all known to gardeners; though every one has had in any degree the management of vines in a hot-house, must have observed the different effects of the same degrees of temperature upon the same plant, in October and February. In the autumn the plants have just sunk into their winter sleep; in February they are refreshed and ready to awake again; and whenever it is intended prematurely to excite their powers of life into action, the expediency of putting those powers into a state of rest early in the preceding autumn appears obvious."

ART. VI.—*Improvement of Hogs.*

[FROM THE AMERICAN FARMER.]

"Lucky Hit Farm, Virginia, October 8, 1832.

Mr. Smith,—Lest your call for information on the subject of the Bedford or Parkinson Hog, should not be answered in as satisfactory a manner as you could wish, I will take the liberty at present, of touching a point or so concerning them, in a very brief way; reserving for the new year a little of my experience in that department of our agriculture; when, with the blessings of life and health, I will report to the Farmer the keeping and weights of five Parkinson, or Bedford Pigs, just one year old the 1st of next January; (alias the Frederick grass breed) for, truly, they will have lived at least six months out of the twelve on pasture, clover and orchard grass. The liberty taken of giving them a new name, is the result of the pains, expense, and trouble, which has been taken to improve them in the crosses and selections made from time to time, whether for the better or not.

The small China, and long-sided English, have been mingled with this breed; and, in truth, the large-sized Parkinson hog may be bred by a judicious mixture of the large English and very short-legged, well-formed, small hog, called by any name whatever. Hogs are indeed a kind of stock calculated to do but little honour to the pen of a scribler, but so universally important in the pen of the farmer, that it is a shame they have been so much neglected. Many are so ignorant as to believe, and declare, that corn alone will make the breed. Give them corn, a plenty of corn, and I'll insure you a fine breed. While it is conceded that corn, or some other substantial food, is as necessary to the great and final perfection of the hog, as grass and hay is to some other of our domestic stock, it must be contended, that if corn, in the greatest profusion, is lavished on illy-made hogs, it will in no reasonable time, if ever, have the effect of changing their deformities into perfections, unaided by a rational degree of skill in ejecting the bad points, and retaining and improving the better; though it is unhesitatingly admitted, that far less skill is required to bring this animal to perfection than the sheep, cow, or horse; and for reasons too obvious to ordinary understandings, to make it necessary to dwell on them for a moment.

More than thirty years since, a pair of these hogs (the Parkinson, then called) were introduced on the Lucky Hit Farm, by my father, a present from Mr. William Henry Fitzhugh, formerly of Chatham, near Frederickburgh, a gentleman well known by his extensive hospitality—afterwards, of Ravensworth, in the neighbourhood of Alexandria—they were raised at his mill to great perfection—also at the mills of Mr. Hartshorn, and Rickets, and Newton, very near Alexandria—were also to be seen at the wagon-stands on the road, and had been transported in wagons to various parts of the country. This is well known to me, being frequently on the road and in the neighbourhood of Alexandria. Mr. Fitzhugh and General Ridgely were on the turf together some forty or fifty years ago. Whether they then paid much attention to the more humble kinds of stock, I cannot pretend to say, but from what I can well recollect of the former, twenty-five or thirty years since, when the turf had yielded its fascinating pleasures to more sober and rational enjoyments, I know that he took great pleasure in dividing his attention between the improvement of farm-stock generally; and I have but little doubt, from the intimacy of Fitzhugh and Gen Ridgely in former days, that this breed must have been derived from the latter. Well do I remember the contrast between our then breeds and the newly introduced Parkinson. I will anticipate a promised communication only by saying, that with ordinary keep, at eighteen months old, my hogs have averaged about two hundred pounds, and are beginning now to break down the prejudices which ought to have been subdued many a year since—to extort

acknowledgements that half the food will raise and fatten them, &c. I bid you adieu for the present, with a short extract from our friend, the Rev. J. Kirkpatrick, of Cumberland County, Virginia, as it touches the subject of the Parkinson hogs, and as we trust to hear more from his beautiful white stock of pigs:—"I have been doing quite smartly in my sheep business since I wrote. I have sold seven bucks (young ones) and nine ewes. These have more than covered all expenses ever incurred by this article of stock. A number more, I find, are in demand. I have thirteen very fine full blooded pigs, for which I can have \$10 a pair—they are very fine and please me very much. My short-horns are all still doing well, but the critical time is just at hand. I have not, however, heard of any fatality in the neighbourhood, and I am adopting all possible precautionary measures."

The fatality, alluded to, is what is termed in the lower country, I believe, the Carolina distemper. It is a serious drawback to the agriculture of the south part of Virginia—a most unfortunate argument for the most extensive culture of tobacco. If you will offer a premium of a medal and a short-horn bull, for an essay on the subject, I will supply the animal, on the simple condition, that the real value of the essay shall be tested by its effects—for it is of infinite importance that all diseases, distempers, or maladies, whatsoever, should be arrested as soon as possible, come from what quarter they may, or from what species of animal.

I am, very respectfully, your friend,

R. K. M.

ART. VII.—*On the Culture of Silk.*

[FROM THE AMERICAN FARMER.]

"Monticello, July 10, 1832.

MR. SMITH—*Dear Sir*,—Prompted by a desire to contribute a mite, however small, to the furtherance of the interests of the "American Farmer," and incited by your request to be informed of the success of my attempt at the culture of silk, I am induced to send you a sketch of the result of my experiments in that interesting branch of industry.

The half ounce of eggs obtained of you last fall, together with a few thousand more, amounting in all to about thirty thousand,

were brought from the cellar, and exposed to the ordinary temperature of a room, on the 3d of May: no recourse was had to artificial heat, and as the weather was unusually cold they did not commence hatching until the 16th, and terminated on the 20th. They were fed on the white mulberry leaf, and reared pretty much in the usual way on the American System: a few commenced spinning their cocoons in 29 days, though the main crop were some days later. The weather was unusually inclement during the whole period of their existence, and it was more than once predicted by some of the "knowing ones," that I would not make a pound of cocoons; and the long continued and repeated rains threatened to verify their forebodings; but in despite of the many unfavourable circumstance, the worms thrived well, until the occurrence of a very severe hail-storm, when the temperature of the atmosphere underwent a very great and sudden change, which killed some, diseased many, and retarded the progress of all; many, which were then engaged in the spinning, languished some days, and either died or spun imperfect cocoons. But notwithstanding all these untoward circumstances, my expectations have been more than realized. A few days after gathering the cocoons, six pounds were indiscriminately taken and weighed, and found to contain an average of 240 cocoons to the pound. A selection was then made of the largest for seed cocoons, and 188 ascertained to weigh a pound, (of these about a dozen were double.) Some of the very smallest were then selected, consisting principally of white cocoons, and 360 were required to weigh a pound. A few hundred cocoons were of a beautiful pearl white, and the remainder were of different shades of yellow, from deep orange to pale straw colour.

I have thus presented you with a brief but faithful outline of my attempt in the culture of silk, from which you can deduce your own conclusions. My own decided impression is, that it is one of the most lucrative as well as agreeable pursuits we can engage in. I have encountered no difficulty in the business, that of reeling, which I find to be more imaginary than real, and is by no means insuperable. By the exercise of patience and perseverance, I have acquired a tolerable proficiency in the much dreaded task of reeling, though the reel on which I operated, I conceive I have very much simplified and improved. The ingenuity of some of our citizens has already brought the light of science to bear on this art, hitherto much neglected, and confined to the lower and less intelligent orders of society.

Professor Emmet of the University of Virginia, has invented a very useful and ingenious machine, which I saw in successful operation a few days since, by means of which the operations of reeling, doubling and twisting, formerly requiring several distinct operations, can be simultaneously and expeditiously performed to any desirable degree. Many of your readers would be grati-

fied with a more thorough account than has hitherto been given of the *morus multicaulis*. Does it answer for hedging? Will its seed, produced in this country, vegetate? &c. If you are in possession of any facts relative to the possibility of rearing several successive crops of silk worms during the season, their communication to the public would be an acceptable service. I have already two crops this season, and may say I have the third in progress now, and as soon as it is finished intend trying a fourth. I have tried, with some success, the project of rearing the worms in open exposure, and have at this time nearly a thousand on a white mulberry tree, with no other protection than catgut to defend them from the ravages of birds. The worms are now in the 10th day of their age, and are in very fine condition; (some exposed last April withstood the greatest vicissitudes of weather with impunity.) I confined one thousand worms exclusively to a diet of black mulberry leaves, and can attest the fact of their capacity to yield large cocoons, though the fibre seems to be coarser than the product of the white mulberry. I also tried the paper mulberry, (Otaheite) but contrary to the experience of Mons. Bonafous, found it barely adequate to the support of life, unless alternated with the white and black, when the worms would be enabled to spin a very dwarfish cocoon.

My near approach to the end of my sheet compels me reluctantly to conclude, which I will do, by observing that my experience has gained many advocates, and made some converts. It has imparted a new impulse, and many have engaged in the culture of silk with a zeal which warrants the most confident hopes of success; and a fair investigation of the subject justifies the belief that we will soon have a permanent and valuable staple, and that America is destined to become one of the greatest silk growing countries in the world.

Respectfully, &c. your friend,

J. T. BARCLAY.

ART. VIII.—*Cold and Warm Soils.*

[FROM THE GENESEE FARMER.]

These are expressions in common use among farmers, and are proper where the subjects are properly investigated. "Plants," says Sir H. Davy, "being possessed of no locomotive powers,

can only grow in places where they are supplied with food, and the soil is necessary to their existence, both as affording them nourishment, and enabling them to fix themselves in such a manner as to obey those mechanical laws by which their radicles are kept below the surface, and their leaves exposed to the free atmosphere. As the system of roots, branches and leaves are very different in different vegetables, so they flourish most in different soils." To ascertain in what soil a given plant will thrive best under similar circumstances, should be the study of every farmer. That plants derive but a small proportion of their food from the earth when compared with what is taken in by the leaves, is fully ascertained; but, to establish any exact proportions, either of matter or quantity, taken into plants either by the roots or leaves, is beyond the present state of agricultural science. That some plants require more heat than others for their perfection, is obvious to every observer; this being the case, it becomes an object with the farmer to be well acquainted with the terms as they are made use of when applied to soils.

Soils which contain a large proportion of clay in their composition, do not conduct heat as readily as those which contain a greater proportion of sand. Colour, also, has much influence upon the properties of soils, as black absorbs heat much more readily than white. Black soils, however, are not always the warmest. Many of our black soils owe their colour to the large quantity of vegetable or carbonaceous matter they contain, which, although it readily attracts heat from the sun, yet, as carbon is a non-conductor of heat, such soils do not become heated to much depth, and remain cold beneath, while they allow plants to be injured by being over heated upon the surface.

The quantity of water contained in, or rather, evaporated from soils, also has a great effect upon their temperature. It is well known that when solids become liquid, or when liquids are converted into æriiforms substances, they absorb heat from surrounding bodies; hence it is plain that the greater the evaporation of water from the surface of soils, the greater the quantity of heat that will be carried off by such evaporation.

When the nature of the soil is comparatively ascertained, it is well to know particularly what plants will thrive best upon each of the different qualities. Sir H. Davy laid it down as a rule, that plants with bulbous roots would thrive better upon loose and light soils than those with fibrous roots; and that plants with short roots require a firmer soil than those that had long tap roots.

The absorbent qualities of soils have also much effect upon plants; and perhaps observation might be made, that the fertility of soil was in proportion to its absorbent properties; thus, a soil containing due proportions of silex, lime and allumine, with

a small quantity of animal and vegetable matter, is found to absorb more moisture from the atmosphere during the night, than either of the component substances when placed by itself.

Decomposing animal or vegetable substances, when converted into a gaseous form, afford food for plants; and the probability is, that it is in this manner that the greatest benefit is derived by the use of manures.

ART. IX.—*Hot-Bed.*

[FROM THE GENESEE FARMER.]

Mr. Goodsell.—Most of our books direct these beds to be made from three feet high, to be composed of recent stable dung, of tanner's bark or oak leaves, with frequent linings to keep up the heat, and to impregnate the blossoms by hand, &c.

All this may be proper and necessary where it is the intention to force fruits or vegetables to perfection during the winter months, but is attended with more expense and trouble than our gardeners and farmers are willing to bestow on the subject.

A hot-bed, however, may be made eminently useful in bringing forward many vegetables at a season much earlier than can be done in the open air, and when used as a seed bed only, are attended with comparatively little expense or trouble.

I am therefore induced to send you a few directions for preparing and managing such a bed.

About the 20th of March get into your garden of recent stable manure a sufficient quantity to form the hot bed; select a spot for your bed open to the sun, set four sticks twenty inches above ground, four feet three inches each way in a square form. Begin to lay on the dung with a fork on the top of the ground, being careful to shake and mix it well as it is put on, till the bed is raised to the top of the sticks, occasionally beating it with the back of the fork, so as to make it as level and smooth as possible. When this is done put on the frame immediately, and cover it with the sash; in about two days the heat will come on, and the bed will have settled to about sixteen or eighteen inches, when the sash should be removed, and the dung made as level as possible within the frame, and about three inches of good garden mould or rich earth from grass ground laid over the dung within the frame, and the sash put on again; let it remain about two days more to warm the earth.

If the heat is too great it should be let off before sowing any seed; this may be done by removing the sash on the back side about an inch, by means of a wooden wedge made as follows: Take a piece of wood about three inches square, cut it to an edge at one end like a wedge, by introducing which at the back side of the frame, the sash may be at any time raised from half an inch to three inches to let off the hot steam or to admit fresh air. When the temperature within the frame is between seventy and ninety degrees, the earth should be smoothed and the seed sown, Such as Battersea and early York cabbage, cucumbers and melons, Cayenne pepper, lettuce, or any other plant that you may wish to cultivate for early use or curiosity.

In the choice of cucumber and melon seeds, I should always prefer those of three or four year's old, as they are much less liable to run to vine, and produce fruit much earlier than recent seed. All those plants may be removed into the open air about the first of May, being careful to select a moist time to transplant them. After the plants come up in the frame, they will frequently want fresh air, and for this purpose the sash ought to be raised an inch or two at the back side every clear sunny day, from the hour of ten A. M. to three P. M., being careful to shut it down, at night, and in the day time during cold or wet weather. They will also want water about once a week; the water should be kept in the frame from twelve to twenty-four hours before it is used, and then applied moderately about once a week.

The frame for the seed bed should be about four feet square, six inches in front and twelve on the back side, tapering towards the front. The sash should be made to fit tight on the frame, and the outside pieces about three inches wide, the slats about an inch and a half wide, and set at such distance as to admit seven by nine glass, to be laid in a grove on each side loping about half an inch at the lower end like shingles on a roof; this sash should be primed like window sash before the glass is puttied in, and should have no cross pieces, as it would tend to obstruct and collect the water on the sash. A frame for the cultivation of sweet potatoes should be deeper, say ten inches in front and about fourteen on the back. These should never be planted in the same frame with other plants, as the vines will soon run so as to fill the frame, and smother every other plant in it.

Yours, &c.

R. M. WILLIAMS.

Middlesex, Feb. 25th, 1832.

ART. X.—*Browsing Cattle.*

[FROM THE GENESEE FARMER.]

In the early settlement of this country, cattle suffered much for hay. I noted in my travels at that day, that the cattle of the New-Englanders looked the best. I called at a Farmer's log house, one day, and asked him, what made his cattle look so well? when those of some of his neighbours were pinched up and shivering about the door. "Why," said he, "I divide my hay between January and March, because I have but little more than enough for those two months: but, I raised some pumpkins and corn; and toped my corn, and saved that part green and bright for cows; I cut up my corn butts and husked my corn in the barn; I throw these into a heap and let them lie about a week, and when they had got tender by the heat, I pitched them on a scaffold over my cow stable, and salted them, (as well as my hay) and occasionally pitched a fork full of bush hay among them. During December, I was cutting down timber, my cattle browsed, nearly all day, at night I gave the young cattle a few corn butts and an ear of corn each; to my cows I gave each a quart of meal, with some horse food, pumpkins, &c.; my oxen had some hay and some corn; and in the morning they went to the woods again. When the snow became deep, I felled bass, maple and hickory, with the tops near a beaten path, and my cattle, from eating a little *salt hay* and *salt butts*, and *stops* and *messes* at the door, would devour the tender parts of the tree tops, to the size of my finger. I have only one horse which used up my straw, which was cut by my boys with my hand ax. This is the way I do; and with scarcely more than half fodder enough, I bring my herds through the winter without loss."

I called on a neighbour of the above, whose roof was decorated with some of his cattle's hides; and asked him, what ailed his cattle to look so lank? "I havn't fodder," was the reply. "My hay was exhausted by the first of February" — "but where was your corn-fodder?" "Why, that an't good for any thing—I husked my corn in the field and turned in my cattle." "Where was your browse?" "O Lord," says he, "when my hay was gone, I did browse them until they about half died ——"

Now, Mr. Goodsell, I leave you to make the comment, if any is needed.

S.

PART III.

MISCELLANEOUS INTELLIGENCE.

Planting Orchards.—Plant your orchards on a declivitous ground; the trees thereby will have spreading tops, parallel to the surface; the frosts will not be so likely to injure the blossoms: the trees are hardier, as they stand in a more brisk circulation of air. In gathering apples, too, something is gained, they will roll down in heaps.

S.—*Gen. Far.*

On Shortening Tap Roots of Trees.—From the transactions of the Society for the advancement of gardening in the Royal Prussian States, communicated for the New-England Farmer.

The following principles are laid down.

1. An injury to any one part of a plant occasions a change in the natural development of the other parts.
2. Roots and stems are always in a certain degree reciprocally proportioned to each other. [Roots produce branches, and branches produce roots.]
3. The tap root does not form a part of every plant; but, where it does so, it is an essential part of that plant.
4. By shortening the tap root, one or other of the following consequences will result: tender plants will be more easily destroyed by severe weather; all sorts of plants by dry weather, from their roots not being so deep in the soil: the wood of the timber trees will be less durable, their trunks shorter, and their heads broader and less high; and fruit trees will blossom earlier and more abundantly, and their fruit will be larger and better flavoured.
5. To transplant trees without injuring their roots, is difficult in proportion to the age of the tree, and the extent of the roots.
6. All transplanting ought to be done when the trees are young, and then only can the roots be cut without injury.
7. When the tap root descends into a bad subsoil, it brings on diseases in the tree.—*N. E. Far.*

Manure for Grapes and Asparagus.—Dr. J. W. Smith, of Lockport, N. Y. in a communication to the American Farmer, says, he has "found from experience, that the coal dust cinders, and scales of iron, from the blacksmith's forge, when properly mixed with fine garden mould, to be incomparably the best manure for the grape that can be used. For Asparagus, I have also made use of finely pulverized oyster shells, well incorporated with the earth in which it is planted, or well dug in about the roots of old beds. Its effects are astonishing, especially on old beds.—*Ibid.*

Ploughing Corn Ground in the Fall.—Much has been said upon this subject, and I will not attempt to theorize or give my opinion on either side, believing that much depends on the nature of the soil and other circumstances; but will

simply relate my little experience. Having a piece of sward land which I intended for corn, I ploughed a strip around the field about three rods wide in the fall; in the spring following, I ploughed the remainder and planted the whole to corn.

That which was ploughed in the fall was tilled with much less labour, and produced a much greater crop. The soil was gravelly, or what the Country Farmer denotes fourth quality.

S. B — *Gen. Far.*

New Plan of Sticking Peas.—Procure a number of slim poles about five feet long, and drive them into the ground at the distance of three or four yards. Pass a small line along the poles, taking a turn round each, within three inches of the ground; raise the next turn three inches, and so on in succession, till you have attained the common height to which the peas rise. The tendrils of the peas seize and twist round these lines, and they are supported in a more attractive and profitable manner than they are by the common stakes. When spread regularly along the lines, they have a fine circulation of air, more advantage from sunshine, and pods can be pulled at all times without injuring the straw, [vines or haulm.] This mode is so cheap, simple, and possesses so many advantages, that it is likely to be soon generally adopted.—*Scotsman, [Edinburgh.]*

Dahlias.—William Prince & Sons, have sent to the lucky editor of the New-York Commercial, a bouquet of fifty varieties of Dahlias, and promise to show him 300 varieties shortly. They say that this magnificent plant bids fair to rival in splendor and variety the Tulip and Rose. We like the comment of the Commercial on this present. He says, "people should always take good care of their editors, as well as clergymen."—*Daily Adv.*

Odoriferous Substances Offensive to Insects.—It is said that the common mint strewed among grain as it is mowed away in the barn, will preserve it from being injured by vermin. Camphor, when kept among bed clothes, will keep away bed bugs and fleas. From these circumstances, together with the fact that we do not recollect of having seen plants strongly odoriferous injured by insects, we are led to conclude that farmers might be benefited by turning their attention to the subject.—*N. Y. Far.*

Honey.—*Mr. Fessenden*—Agreeably to your request, I send you an account of my method of obtaining honey under glass, as exhibited at the horticultural rooms on Saturday last. My hives are made of boards 12 inches square on the bottom, and 8 inches in height, or about half the size of common hives. In the back of each my hives I put glass, with a wooden slide to cover it on the top. I make three holes about an inch in diameter, which I stop with corks. After the bees begin to work I procure such glasses as I choose, say large tumblers, or any bell or other shaped, being open at one end only, placing sticks across them inside for the bees to attach their comb to. I then pull the corks from the hive, and place over the holes of the glasses, inverted, and cover them over with another hive; the back part of my apiary is opened by wooden doors. By this simple arrangement, I amuse myself and friends when I choose, (though rather to the annoyance of the bees) by opening the door and slipping the slide from the glass when I can observe them at their work. When the glasses are filled or nearly so, early in the morning I take the cup off, stop the holes again, and what few bees remain in the glasses soon return to the general family; in this manner you will observe the bees are not destroyed. The whole process is pleasing, profitable, and instructive of the best morals, industry, and prudence.

The mode mentioned above, I am aware is familiar to many, but perhaps will be new and useful to some.

Yours, with respect,
Braintree, Sept. 27, 1832.

B. V. FRENCH

Chickens in Gardens.—There are many plants, more particularly among the *Cruciferae* (turnip, stock gilliflower, &c.) which I should be discouraged from cultivating in my garden without the assistance of chickens in destroying the insects. This is the third season that I have employed them for this purpose. I discharge the hen from her prison as soon the chickens are large enough to stay comfortably by themselves through the night; for they learn to take care of themselves during the day, when a short period after their introduction. When of the size of a quail, they commonly become troublesome by meddling with matters not committed to their charge, more especially by scratching; and then we expel them. As one brood after another is brought into the garden, we have always a supply of these busy creatures, during the season.

Some weeks ago I was on the point of turning out a brood, when in consequence of mowing an adjoining meadow, the grass hoppers came into the garden in overwhelming numbers: and I foresaw that unless these insects could be quickly dispossessed, great damage must ensue. I immediately changed my purpose. Instead of expelling the inmates, a few large chickens from the outside were admitted, and the activity of the whole corps was brought into full play. The grass hoppers were chased and destroyed in every direction; and in a short time the whole colony disappeared. We have since removed those chickens, leaving a brood of smaller size to guard the premises against stragglers.

I have written this in consequence of the last communication of *Ulmus*. Grass hoppers are also very plenty in this quarter, and on some gardens their depredations have been serious; but the drouth at Buffalo must have been severer than with us. We have not suffered on that account within the last month or six weeks: the rains without flooding have been abundant, and the pastures are fresh and green.

D. T.

Greatfield, Cayuga Co. 9 mo. 7, 1832.—Gen. Far.

Farm.—A writer in the Massachusetts Agricultural Repository, vol. v. page 320, in treating “*on the extent of land* necessary for a farm, and sufficient to support a family well and independently,” has the following among other valuable remarks:—“We know men, active, intelligent and industrious, possessed of 30 or 40 acres of land, who are labouring for others to take charge of their neighbours’ concerns, upon the avowed reason, that they cannot support their families upon so small an extent of land. But they do not realize the actual efficiency of the soil. Undoubtedly there are many honourable exceptions to the observation we are about to make; as a general rule, however, it may be asserted, that *the farmers of Massachusetts are yet to learn the immense productive power of a perfectly cultivated acre*. Instead of seeking riches in augmenting the number of their acres, let them be sought in better modes of husbandry. As a general truth, we believe it may be asserted, that every farmer in Massachusetts, possessed of one hundred acres of land, might divide them fairly, by quantity and quality, into thirds, and by a suitable cultivation make either third more productive than his whole hundred acres are at present. This is the operation at which those interested in the agriculture of Massachusetts ought to aim, to make farmers realize what cultivation can effect, and to teach the modes by which the productive power of the soil can best be elicited.—*Gen. Far.*

Oats.—We have frequently inquired of our farmers, why they did not sow the large oats in preference to the small varieties that are common in the country? and their answers have been, that they can get from five to ten bushels per acre more of the small than of the large. We will take the small oats at 40 bushels per acre, weighing 32 lbs. to the bushel, which will amount to 1280 lbs. to the acre. If we allow ten bushels difference

in favour of the small, which we think is beyond probability, then we have 30 bushels per acre at 48 lbs. per bushel, which is 1440 lbs. per acre, which will make 160 lbs. per acre in favour of the large oats. In addition to this, every person knows that a pound of large heavy oats are worth more than a pound of light ones, as there is a greater quantity of farinaceous matter contained in them than in a pound of light ones; and of course, they will command a higher price per pound, and a greater profit from the same quantity of land. If we are wrong in this calculation, we desire to be corrected; if not, we think the argument in favour of the larger varieties of oats. By large varieties, we mean the barley and potato oats, so called, both of which, we believe, are more or less scattered through the country.—*Ibid.*

Pastures.—The amount of land *wasted*, under the name of pasturing, even in the most thrifty and best cultivated parts of the country, is as immense as it is surprising. The best pastures are usually from one half to three quarters overgrown with worthless and annoying bushes. The very severe labour of cutting them down is resorted to from time to time; and the result is, that instead of being diminished or destroyed, they shoot out into innumerable branches, and become more injurious and more annoying. By the slightest observation, this fact is fully verified. Pastures that are not rich enough to produce bushes, fail also to produce grass, for the want of stirring and manuring the soil; and large tracts are thus left to sterility, so as not to pay for repairing the fences. A large farmer who should let all his lands remain in pasture, in either condition, would, in a few years, be ruined.

Doubtless, the only effectual way to destroy the bushes is to plough and plant the land, till the seeds and roots are all dead and incapable of propagation. This method, though laborious, is sure to be effectual. We have seen it tried in various instances. The land should then be laid down in grass, with some manure, if it should require it. Adjacent bushes should then be destroyed in the same manner, or their seeds will gradually usurp the field from which they have been driven. Barren fields should also be cultivated in a similar manner, in order that the soil, by being stirred, may be rendered active and fruitful. Whenever the want of time, or the nature of the ground does not permit such a process of cultivation, large portions of it should, from time to time, be planted with useful trees; and when one or two generations of trees have passed away, the land may again be cleared, burnt, and laid down in grass. In this way, the land is at least rendered *useful*, and in an age or two the bushes will be partially destroyed, which by the plough might be wholly destroyed in three or four years. It is high time that the useless and laborious practice of removing bushes was superseded by one of the two methods here recommended.—*Ibid.*

Preservation of Cabbages.—The London Monthly Magazine gives the following method by which the Portuguese preserve cabbages on board their ships. The cabbage is cut so as to leave about two inches or more of the stem attached to it: after which the pith is scooped out to about the depth of an inch, care being taken not to wound or bruise the rind by this operation. The cabbages then are suspended by means of a cord, tied round that portion of the stem next to the cabbage, and fastened at regular intervals to a rope across the decks. That portion of the stem from which the pith is taken, being uppermost, is regularly filled with water during the very long voyages. The same method might be advantageously adopted in private houses.